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ADDRESSES AND ORIGINAL ARTICLES

SOME FACTORS IN THE CAUSATION OF HYDRONEPHROSIS.*

By J. P. Hosford, M.S Lond., F.R.C.S. Eng.,
FIRST ASSISTANT IN THE SURGICAL PROFESSORIAL UNIT, ST. BARTHOLOMEW'S HOSPITAL.

The causes of hydronephrosis may be divided into congenital and acquired. The term *congenital hydronephrosis* at once raises a difficulty in nomenclature, because there is a type commonly called congenital in which the dilatation affects mainly the pelvis of the kidney. In that the dilatation is probably not present at birth it is not really congenital, although the factors (whatever they be) which cause it may be congenital. It is best to confine the term congenital to those types of hydronephrosis which are present in the new-born or are discovered soon after birth. It is found that they fall into two main groups :—

(1) Where there is some discoverable mechanical cause obstructing either the ureter or urethra.
(2) Cases of megalo-ureter combined with hydronephrosis in which there is no discoverable obstruction.

In the first group the ureter may show a definite stricture, narrowing, or fold, or it may present as an impervious cord. In quite a number of those cases showing distension of the bladder, as well as distension of the ureters and kidneys, some congenital mechanical obstruction [1] can be found in the posterior urethra. The commonest is a valve,[2 3] so arranged that it obstructs the downward passage of urine, but does not prevent the upward passage of a bougie.

In the second group, where no obstruction can be found, the ureteric orifices and bladder sometimes share in the dilatation, though in others the kidney and ureter of one side are alone affected. The cause of the dilatation is unknown, but it has been suggested by some authorities that the explanation may be an embryological one. It has been shown by Gerard [4] that the ureters in fœtal life up to the third or fourth month are of large calibre, as compared with the size of the kidney and the rest of the body. Deficient development of the musculature of the ureter may be the cause.

This musculature does not begin to develop until the third month—it begins at the lower end of the ureter and gradually spreads up to the renal pelvis. Eisenstaedt [4] says that an imperfect development, a true hypoplasia of the muscle-fibres must be seriously considered as a possible cause. This possibility, in addition to the persistence of the wide calibre of the ureters as seen in early fœtal life, may explain the condition of congenital megalo-ureters and dilatation of the renal pelvis.

I wish to divide the causes of *acquired hydronephrosis* into two groups also :—

(1) When there is a demonstrable macroscopic obstruction.
(2) When there is no such obstruction.

In the first group the obstruction may be due to a variety of lesions, amongst which may be mentioned calculus, neoplasms or tuberculous inflammation obstructing the ureter, ureteral strictures, and ureteral kinks. In connexion with the last of these I will refer later to aberrant vessels and abnormal mobility of the kidney. I do not propose to deal with the question of urethral or bladder obstructions in the cause of hydronephrosis.

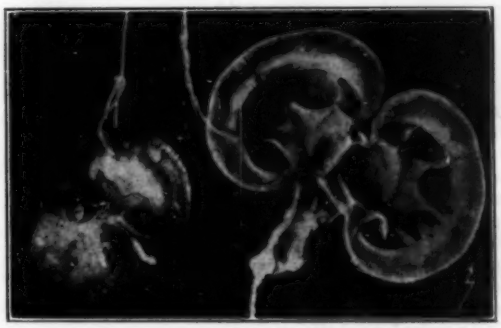
The group of cases where there is no demonstrable macroscopic obstruction is of much greater interest, and I will refer to it at some length later on.

Effect of Obstruction of Ureter.

I now wish to consider the effect on the kidney of obstructing the ureter. Information on this subject can be derived from animal experiments and from human pathological material and from those uncommon occasions when the ureter in man, or more commonly woman, is tied intentionally, or by accident, in the course of some surgical operation.

It is often taught and it is still stated in many text-books that a ligature tied tightly around a ureter so as completely to obstruct it does not cause a hydronephrosis, but brings about an anuria and primary atrophy of the kidney. Now this is contrary to nearly all experimental evidence. It has repeatedly been shown that complete obstruction to a ureter in different animals causes a hydronephrosis. Working with rabbits I have found that in every case where the ureter has been completely obstructed, whether it be at the upper or lower end or in its middle, a hydronephrosis has developed, and in no instance has there been a primary atrophy. There can have been no question about the completeness of the obstruction, because the ureter was doubly ligatured and divided between. The only way in which I have produced a primary atrophy experimentally when the ureter has been obstructed, is by performing a simultaneous ligature of the renal artery.

FIG. 1.



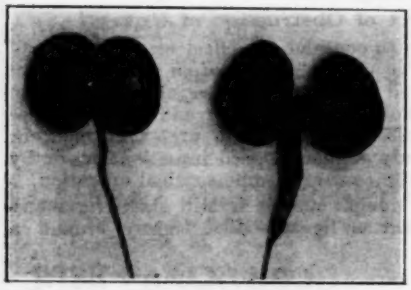
Hydronephrosis of left kidney of rabbit produced by complete ligature of ureter. Animal killed after 14 days.

As the hydronephrosis increases in size there is a gradual destruction or atrophy of the renal parenchyma, and eventually the condition of hydronephrotic atrophy results in which all the renal secreting tissue is destroyed, and a thin-walled sac of watery fluid remains. The larger the animal the longer does it take for complete hydronephrotic atrophy to become established ; the time for this to happen in man is unknown, but in the rat it is about four months, in the rabbit ten months, and in the dog 18 months or more. In experimental work a primary atrophy has occasionally been produced, but only in cases with an associated pyelonephritis. It is well known that a hydronephrosis of considerable size can

* Hunterian lecture delivered before the Royal College of Surgeons of England on Feb. 1st.

form without causing any symptoms, and it is probable that when a ureter is ligatured in man a hydronephrosis follows, and goes on to the stage of hydronephrotic atrophy without causing symptoms. There is little clinical material from which to gain information on this point, but A. E. Belt,[5] in reviewing 64 cases of complete ureteral ligature collected from the literature, found that in 38 there was definite evidence of renal disturbance, either immediate or at some later time. Out of 17 of these cases, in which a later examination was obtained, it was found that 14 showed a definite hydronephrosis.

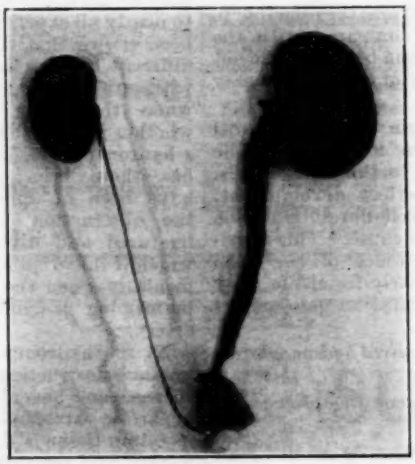
FIG. 2.



Hydronephrosis of left kidney of rabbit produced by incomplete ligature of ureter. Animal killed after 14 days.

An incomplete or partial obstruction to a ureter, as is well known, produces a hydronephrosis. The rate of formation and eventual size of the hydronephrosis varies, of course, according to the degree of obstruction. The types of hydronephrosis which are found experimentally with complete and partial ureteral obstruction are the same—they differ only in degree. The rate of formation is more rapid with a complete obstruction, though with an incomplete obstruction the hydronephrosis will progress to a much greater size, but eventually in most cases there will be a total atrophy of the renal parenchyma. Another question which is asked is whether there is any difference in the hydronephrosis produced by a high or low ureteral ligature. Answering from experimental work in animals it can be said that the type of hydronephrosis as regards proportional dilatation of pelvis and calices is the same, but the size of the hydronephrosis is usually a little different; with a low ureteral ligature the rate of formation is somewhat slower than with a high ligature. This has been my experience also.

FIG. 3.

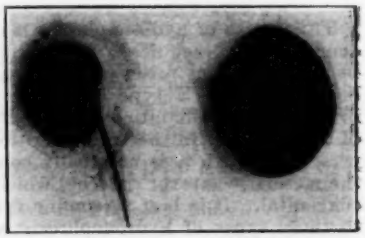


Hydronephrosis and hydroureter of left kidney of rabbit produced by complete ligature of ureter at lower end. Animal killed after 14 days.

Functional Obstruction.

So far I have referred to anatomical obstructions to the ureter. Can there be such a thing as physiological or functional obstruction causing hydronephrosis? The urine secreted by the kidney is conveyed along by a wave of peristalsis. This wave starts in the major calices near the tips of the renal papillæ and sweeps over the pelvis; it slows up at the pelvi-ureteric junction, and then becomes more marked as it passes along the ureter. Stimulation by pinching only sets up a wave of contraction when the stimulus is applied to the area near the tips of the renal papillæ—other areas are refractory. Stimulation of the ureter causes much stronger contractions than can be obtained in the pelvis. Now it might be thought that if this peristaltic wave in the calices, pelvis, and ureter were interrupted, there might be a paralytic obstruction to the outflow of urine such as is known to occur in the intestine in paralytic conditions. Experiments were done in an attempt to produce such an obstruction. The ureter in a rabbit was exposed transperitoneally, the peritoneum being divided over its whole length. It was then lifted free from the posterior abdominal wall, the loose areolar tissue being stripped from it so that the ureter remained attached at only its two ends. This apparently in no way interfered with the normal peristalsis, because after 21 days the kidney showed not even the earliest degree of hydronephrosis.

FIG. 4.



Hydronephrosis of left kidney of rabbit produced by complete ligature of ureter at upper end. Animal killed after 14 days.

More drastic experiments were carried out. The ureter was exposed as before and lifted from its bed. By blunt dissection with a forceps the entire muscular coat of the ureter was stripped off for a distance of 2·5 cm., so that only the mucous membrane remained. It certainly looked at the time of the operation as though it would be impossible for urine to be conveyed along this section of ureter, but the result in all cases except one was the same—there was much scarring around the area of ureter which had been stripped, but the ureter above this point, as well as the kidney, appeared perfectly normal. In one case where the stripping had been done in the region of the pelvi-ureteric junction the mucous membrane had apparently been perforated at the time of operation, and there had occurred a urinary leak into the surrounding tissues, with the result that a localised sac containing urine, with a thick adventitious wall, had formed; it communicated with the upper end of the ureter, and so with the kidney; the ureter below this point was fibrosed and quite impervious, so that the kidney was hydronephrotic. Watson Beach,[6] in an investigation into atony of the ureter as a cause of hydronephrosis, removed about 2 cm. of the ureter in a rabbit and replaced it by a glass cannula. He found some dilatation of the ureter above the cannula, and a slight

degree of hydronephrosis. A rabbit's ureter is very small, and to insert a cannula into it in such a way as to cause no fibrosis or mechanical obstruction cannot be at all easy. It is difficult to assess the exact value of his experiments as demonstrating a functional obstruction, because there is such a considerable likelihood of producing some fibrosis and mechanical block where the cannula is inserted, and also because the experiments of stripping off all the muscular coats of the ureter give results opposed to Beach's.

Types of Hydronephrosis.

Before proceeding further with the causes it may be well to mention the different types of hydronephrosis. The following will be discussed: (1) renal type; (2) pelvi-renal type; (3) pelvic type.

It is not always easy to separate these three sharply from one another, but in the *renal type*, which is usually due to a calculus, the kidney is considerably enlarged owing to a dilatation of the calices and destruction of the renal parenchyma, the pelvis being scarcely increased in size at all, or only sufficiently to contain the calculus or calculi.

FIG. 5.

Renal type of hydronephrosis with calculus in pelvis, removed at operation.

The *pelvi-renal type* is usually due to some definite visible obstruction to the ureter below the pelvi-ureteric junction—it may be within the lumen of the ureter, in its wall, or from external pressure.

In the *pelvic type*, although the whole kidney shares in the dilatation, the pelvis is mainly affected. It is often spoken of as the congenital type; this is probably an incorrect term, because it is unlikely that it is present at birth, although the factors which cause it may be some congenital defects or maldevelopments. Idiopathic is a better term, although it takes us no nearer the cause. The origin of this type of hydronephrosis is usually obscure. Many papers have been written on this subject.[7 8] Most of them are devoted mainly to explaining why the obstruction, which is at first not evident, really exists; and, in an endeavour to understand the cause, too little attention seems to be paid to the really rather remarkable fact of the disproportionate dilatation of the pelvis as compared with the remainder of the kidney.

Causes of "Idiopathic" Hydronephrosis.

I think it well to examine for a few minutes some of the causes which have been or are put forward to explain the occurrence of this so-called idiopathic type of hydronephrosis.

(1) *Stricture of the ureter.*—There is a great difference of opinion amongst urologists as to the frequency of occurrence of ureteral stricture. In 1925 Hunner was quoted as having seen over 2000 cases, while other urologists of wide experience meet with them but seldom. In many of the cases of idiopathic hydronephrosis a stricture is described as being present at the pelvi-ureteric junction, and on examining specimens of this condition a narrowing certainly is sometimes found. It is, however, uncommon to find that during life a full-sized ureteric catheter cannot easily be passed right up into the renal pelvis, so that no very marked narrowing can be present. Hunner believes that focal sepsis is much the commonest cause of ureteral strictures. Winsbury White, who has done much work on this subject, believes that the earliest cases show narrowing of the ureter from chronic inflammation, and that this appears to be the cause of the dilatation. But why, one asks, does the dilatation affect mainly the pelvis.

FIG. 6.

Pelvic type of hydronephrosis.

(2) *Abnormal mobility of the kidney* has frequently been blamed as a cause of hydronephrosis. It is suggested that the unusually low descent of the kidney causes a kinking of the ureter, but it is difficult to see why or over what it becomes kinked. Apart from aberrant vessels there are no structures commonly present which can be found post mortem, or at operation, which might cause such a kink. It is true that by pyelography, either by means of a ureteric catheter or by excretion methods, kinks can be demonstrated in patients who have attacks of renal pain; but frequently there is no associated hydronephrosis. Movable kidney most commonly causes symptoms in the fourth or fifth decade, while idiopathic hydronephrosis is usually seen before this. Many cases of movable kidney of long standing, although having attacks of pain, show no real evidence of hydronephrosis, although the symptoms may be relieved by nephropexy. This operation not uncommonly brings definite relief of the pain, but it is no proof that it is due to relieving a hydronephrosis by straightening out the ureter. Unless the kink is very sharp the ureter is a structure unlikely to be obstructed, because being a muscular tube it can straighten itself out somewhat in parts as waves of peristalsis pass along it. It is true that a sharp kink will cause a hydronephrosis by obstructing the ureter. I have shown this experimentally by kinking the ureter in a rabbit by means of a piece of silk which was attached to the muscles of the posterior abdominal wall above the kidney, and below was looped round the ureter about 1 cm. from the pelvi-ureteric junction. A well-marked hydronephrosis had formed in 28 days. The experiment was repeated, but this time the silk thread was attached above to the twelfth rib. In both cases there was a hydronephrosis and dilatation of the ureter on the proximal side of the distorting silk.

(3) *Aberrant renal vessels* are very frequently mentioned as a cause of hydronephrosis; but I think that probably the majority of urologists now agree that the pressure of the so-called aberrant vessel on the pelvi-ureteric region is usually a secondary affair; by that I mean that the artery does not press upon and kink the ureter or renal pelvis while they are of normal size, but that it is only when dilatation of the pelvis from some other cause has occurred

that this pressure and kinking effect occurs. Very frequently the artery which is called aberrant is really only the inferior branch of the renal artery entering the lowest part of the hilum of the kidney. The term aberrant should be reserved for those cases where there is an artery which, arising from either the main renal artery or the aorta, enters the lower pole of the kidney not by way of the hilum but actually through the renal parenchyma.

Winsbury White has described very clearly the mechanism by which the renal pelvis becomes involved by the inferior renal artery. He found in 9 out of 11 examples that the vessel implicating the ureter is a normal inferior branch of one of the main renal vessels. This branch runs down across the front of the pelvis to enter the lower part of the hilum, while the main renal artery lies above and behind the pelvis so that the latter lies between two arteries. As the pelvis enlarges for any reason it tends to bulge forwards between these two arteries owing to less resistance in front, and as it does so it hangs over and is constricted by the inferior artery lying in front. In a number of the cases of hydronephrosis associated with what at first appears to be an obstructing artery, it is found on closer examination that the constriction is not exactly at the point where the artery crosses the ureter; sometimes it is above, and rarely below.

(4) *Folds and valves.*—It is not an uncommon experience in cases of hydronephrosis of the pelvic type to find what is taken to be a valve or fold at the pelvi-ureteric junction. This valve is probably secondary to the dilatation, and not the primary obstruction causing it. As the pelvis gradually dilates in many cases of hydronephrosis it may be noticed that the dilatation occurs most markedly in the lowest part of the pelvis—this is like the urinary bladder enlarging in obstructive cases, for here, as in the pelvis, it is the lowest part or base which first enlarges most rapidly. This unequal enlargement has two effects: firstly, it causes the condition of high implantation of the ureter in the pelvis, because the relative distances from the ureter to the upper and lower borders of the hilum are altered. This high implantation is probably rarely, if ever, congenital. Secondly, it causes a valve-like opening, and this is exaggerated as the upper end of the ureter becomes adherent to the pelvis. This valve-like opening, once it is established, of course acts as an obstruction to the outflow of urine, and so causes the hydronephrosis to progress further; but it is almost certainly secondary to the dilatation and is neither a congenital malformation nor an initial cause of the hydronephrosis.

UNEXPLAINED CASES.

Although all the mechanisms mentioned above are possible causes of hydronephrosis, there are many cases in which it is difficult to say what primarily caused the condition. In some, several lesions which might account for it are found, while in others none at all can be discovered; but even in those cases where one or more lesions may be found, these are often secondary to the hydronephrosis and not the primary condition producing it. All these causes are mechanical and not functional. Often no visible obstruction is found. Indeed, as has already been mentioned, in the majority of cases a ureteric catheter can be passed right up into the renal pelvis, and in some the pelvi-ureteric junction has been described as being larger than usual, and although the hydronephrosis may reach a tremendous size it does not seem to be able to empty. In this connexion it may be interesting to recall the account of what is probably the largest hydronephrosis ever recorded.

In 1746 Dr. Glass [9] gave a most careful and convincing account of a post-mortem examination on a young woman of 23 who had had a large belly for many years. The circumference of the abdomen was six feet four inches. When the abdomen was opened, he tapped the huge fluid swelling and describes how he "evacuated a surprising quantity of water, which was lightly tinged of a coffee colour, limpid as urine, and not in the least fœtid. This water was carefully measured and found to be not above a pint less than 30 gallons wine measure; which must weigh, according to common calculation, 240 lbs."

In describing the kidney and ureter Dr. Glass said, on the left inferior part was discovered the orifice of a duct, which opened obliquely into the cavity of the saccus, and would easily admit of a large goose quill. The oblique opening he mentions was probably the condition of oblique valve-like opening to which I have already referred and which is secondary to the dilatation of the kidney. We must therefore look for some other cause for these hydronephroses.

Two questions have to be answered—what is the nature of the obstruction, is it mechanical or functional? and secondly, though of equal importance, why does the pelvis show a distension out of proportion to the remainder of the kidney? Can any help be obtained from experimental work on animals? Such work has already been briefly referred to, but it may be said at once that I can find no account of any worker having produced what may be considered an example of the pelvic type of hydronephrosis, indeed, the type of hydronephrosis is not referred to except in a few papers, although there is a fairly abundant literature on experimental hydronephrosis.[5 10–12]

EXPERIMENTS.

Working with rabbits I have been unable to produce a lesion of the kidney which could be considered to be an example of a pelvic type of hydronephrosis,

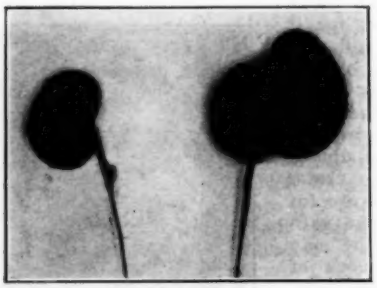
FIG. 7.

Hydronephrosis of left kidney of rabbit produced by complete ligature of ureter. Animal killed after 91 days.

although it is perfectly easy to produce a hydronephrosis in these animals, and I have done so in a variety of ways. The ureter has been completely occluded by ligature and division in different animals for periods of one week, two weeks, six weeks, and 13 weeks; the ureter has been partly occluded for two weeks in one animal and for seven weeks in three animals. This partial occlusion has been carried out in the majority of cases by tying a silk ligature around the ureter so as to obstruct it almost completely; an encircling fine silver band has also been used to cause a partial obstruction. Both the complete and partial ligatures have been applied at the pelvi-ureteric junction and at the bladder end of the ureter as well as in the middle portion of its course. The ureter has been kinked immediately below the pelvi-ureteric junction by a silk thread

which was not tied around it but merely dragged it firmly out of its course. The kidney and ureter in its entire length have been lifted from their bed and all the connective tissue stripped off them so that probably the nerve-supply to the ureter except such fibres as may come along the renal artery and vein was destroyed. The muscular coats of the ureter for some distance have been stripped off, leaving only the mucous membrane. The renal vein has been ligatured at the same time as the ureter. The renal artery has been ligatured at the same time as the ureter. On different animals the anterior and posterior divisions of the renal artery have been ligatured at the same time as the ureter. Rabbits were used in all these experiments and the left kidney and ureter in nearly every instance. In not a single experiment was a hydronephrosis of the pelvic type produced. In every case the hydronephrosis was really of the pelvi-renal type, except when the ligature was so high up as to prevent the pelvis from dilating. In one group of experiments, however, a condition which at first sight resembles somewhat a pelvic type of hydronephrosis was produced (Fig. 8). To obtain this the operation performed consisted of exposing the kidney through a lumbar incision, defining the renal artery as it lies above and behind the renal vein and following it until it divides into its two terminal branches, anterior and posterior, just before they enter the hilum. The posterior division which in rabbits, as in man, is the smaller of the two, though in the majority of animals it is the larger, is ligatured with fine silk; the ureter is then ligatured tightly. There is no inter-communication between the areas of the kidney supplied by the anterior and posterior divisions of the renal artery, and so the area supplied by the branch which is ligatured becomes an anæmic infarct. The result is that with the ureter tied and therefore the pressure slightly increased, the infarcted posterior area dilates very much more rapidly than the anterior part which still has its normal blood-supply. The result is really a diverticulum of the posterior half of an ordinary hydronephrosis.

FIG. 8.



Hydronephrosis; giving appearance of pelvic type hydronephrosis. Produced by ligaturing ureter and the posterior division of renal artery. Animal killed after 14 days.

The Pelvi-ureteric Junction.

I now wish to return to a consideration of the problem—Can there be a functional obstruction at the pelvi-ureteric junction in the absence of an organic one, and if so, can this in any way be associated with the unusual dilatation of the pelvis which occurs in the pelvic type of hydronephrosis? The question of spasm at the pelvi-ureteric junction at once suggests itself, but is there a sphincter here?

In some detailed descriptions of the anatomy of the renal pelvis a ring muscle or sphincter is figured at the pelvi-ureteric junction. Ring muscles at the junction between major calices and pelvis as well as at the pelvi-ureteric junction and other places were beautifully demonstrated by Max Brödel[13] over twenty years ago. These ring muscles are not well-defined structures like the pylorus, and, indeed, many anatomists deny the presence of an anatomical sphincter at the pelvi-ureteric junction, while others do admit that there is a slight thickening of the circular muscle-fibres at the pelvi-ureteric junction and at other narrowings in the ureter. Though there may be no anatomical sphincter, this does not exclude the possibility that there may be a functional or physiological one. The presence of some such sphincter is suggested by the observations of Dardinski[14] while observing peristalsis in human renal pelves and ureters. The wave of peristalsis, as it sweeps over the entire pelvis, slows up as it reaches the pelvi-ureteric junction to become more vigorous again as it arrives at the ureter. This suggests that the neuromuscular mechanism is not quite a continuous one. The presence of this sphincter has been demonstrated experimentally in animals by Pannett,[15] by gradually dilating the ureter with fluid run into it through a fine cannula from below. The ureter dilated from below upwards from the point at which the fluid was run in, up to the pelvi-ureteric junction; here the dilatation ceased, the pelvis presumably being protected by a sphincter at the pelvi-ureteric junction. It might be thought that the renal pelvis would have a thicker wall than the ureter, and that this might account for its failure to dilate; actually the converse is true, the renal pelvis having a somewhat thinner wall than the ureter.

If there were a spasm at the pelvi-ureteric junction causing the hydronephrosis, and considering the length of time that this would have to continue, one would expect to find hypertrophy of the circular muscle at this point, but this is not found. Also, so simple an obstruction as a spasm would not be likely to cause the peculiar dilatation of the pelvis, any more than a dilatation of pelvis and kidney. Another suggested explanation is that there is some disorder of the neuromuscular mechanism of the pelvis so that the peristalsis of the calices and pelvis is disturbed, and the urine not being conveyed away gradually accumulates in the pelvis, which therefore dilates. If the peristalsis in the ureter continued to work normally, while the peristalsis in the pelvis was irregular or weak, the abrupt demarcation between pelvis and ureter which is seen in many cases could be accounted for.

Can it be that there is a congenital deficiency in the formation of the muscle of the pelvis so that it dilates more readily than the remaining portion of the kidney? This point cannot be proved, but the facts are against it, because in a certain number of the cases a very well-marked and strong peristalsis can be seen continuing in the pelvis after nephrectomy; also, microscopically, the muscle in the pelvis is seen to be well developed, and in some cases increased in amount. It is true that in specimens of an advanced degree of this type of hydronephrosis the pelvic wall is very thin, but this is due to the great dilatation.

Achalasia of the Sphincter.

The pathological explanation which appears best to cover this condition of pelvic hydronephrosis, where no primary obstruction is apparent, and even possibly some of those cases where some obstruction is present, is achalasia or lack of relaxation. This condition occurs in various parts of the body, notably

the cardiac orifice of the stomach, and the colon in Hirschsprung's disease. The condition of achalasia of the cardia,[16 17] which is now, I think, a well-established entity, has been studied extensively by many workers. I will give a brief account of it in order to be able to compare the condition of idiopathic pelvic hydronephrosis with it.

On examining specimens of the lower part of the œsophagus and cardiac end of the stomach, no well-marked sphincter can be demonstrated macroscopically, there is nothing at all comparable with the pyloric sphincter; but it is nevertheless generally agreed, and there can be no doubt of the fact, that there is a functional sphincter if not an anatomical one. It can be seen with an œsophagoscope. In a healthy person the cardia does not make itself known to us, so that we may forget its presence even during the act of swallowing. In cases of achalasia of the cardia, it is found at post-mortem examination that there is no appreciable hypertrophy of the circular muscle at the cardia, the cardia is in fact open, and water can be poured through it, there being no apparent obstruction. There is, however, the established fact of difficulty in emptying the œsophagus, and food accumulates on the proximal side of the cardia. At first there is an hypertrophy of the œsophagus above the cardia. Later this gives way to an atrophy and great dilatation. This dilatation of the œsophagus is an outstanding feature in cases of achalasia of the cardia.

Now to compare these facts about this condition with the idiopathic type of hydronephrosis, let us first consider the sphincter. As I have already said, there is a functional sphincter at the pelvi-ureteric junction, even if there is not an anatomical one; but in either case it is fairly comparable with the cardia, and in neither instance is there a well-developed powerful sphincter such as occurs at the pylorus. The natural action of the pylorus throughout a part of digestion is to prevent food passing in spite of peristalsis trying to force it through, whereas the cardia and pelvi-ureteric sphincter allow the easy passage of food and urine respectively.

In cases of hydronephrosis without apparent obstruction there is, as in cases of achalasia of the cardia, no hypertrophy of muscle found at the pelvi-ureteric junction. A further similarity between the two conditions may be noted in regard to the muscle of the renal pelvis. In the early stages of hydronephrosis there is hypertrophy of the muscle; in two cases of this condition where nephrectomy had been performed, very powerful deep peristaltic waves were seen to continue for upwards of half an hour after the kidney had been removed from the body; the pelvic wall was thickened in each case. Winsbury White,[18] in describing an early case of hydronephrosis, says a considerable degree of muscular hypertrophy can be made out; and Hinman,[5] who has done so much work on hydronephrosis, describes hypertrophy of the muscle about the pelvis as being often most pronounced and extending well up on to the major and minor calices. In the later cases hypertrophy gives way to atrophy, and a considerable degree of dilatation occurs. As already mentioned, in achalasia of the cardia there is first an hypertrophy of muscle in the œsophagus, followed by atrophy and dilatation.

One authority, to whom I have already referred, has said that the inflammatory changes in the pelvis and ureter can quite easily explain all the changes which occur in hydronephrosis from the inception of the disease to its termination. Undoubtedly a stricture at the pelvi-ureteric junction due to chronic inflammation or to any other cause will bring about a hydronephrosis, but the theory will not explain why the dilatation is of the pelvic type. If there is inflammation present from the inception of the disease, I think one would expect the hydronephrosis to be of the renal type owing to thickening and fibrosis of the pelvic wall; in a typical case of the renal type of hydronephrosis due to a calculus, this is the probable and, I believe, the usually accepted reason why the pelvis does not dilate, for it is chronically inflamed and thickened around the stone; this is not only so when the stone is in the pelvis, but also when it has slipped further down the ureter (Fig. 9). To digress for a moment to the gall-bladder, a parallel may be drawn—in cases of obstruction to the common bile-duct where there is a diseased, that is a chronically inflamed gall-bladder, the latter does not dilate as it does when it is healthy, this condition, of course, being seen, for example, in cases of malignant obstruction to the common duct. It seems more probable that the inflammation which is so often associated with hydronephrosis is not primary and is not the cause of the condition, but that it is the result of some stagnation of urine within the pelvis, and is, therefore, secondary to the hydronephrosis. As has already been mentioned, in some of these cases of the pelvic type of hydronephrosis, the pelvi-ureteric junction is not obstructed, though in others there is a narrowing, and sections at this point show signs of chronic inflammation. Now if the hydronephrosis is due to an achalasia, as I believe, when the infection which is secondary to the stagnation of urine occurs, there will be an inflammatory thickening not only of the renal pelvis but also of the adjacent portion of the upper end of the ureter. As time goes on and the pelvis dilates it becomes so stretched that an appreciation of the inflammatory thickening is lost, while the pelvi-ureteric junction still shows this thickening, and so to some extent narrowing, because it does not dilate owing to its want of muscular relaxation or achalasia. Now is there any further explanation why the pelvis would dilate in cases of achalasia? Can it be associated with some irregularity of nervous control?

FIG. 9.

Renal type of hydronephrosis with calculus in ureter. The renal pelvis is not dilated.

THE NEUROMUSCULAR MECHANISM.

The nerve-supply of the pelvis and ureter comes from the renal plexus; the spermatic and hypogastric plexuses also supply the ureter in its lower part. There seems no doubt that there is a parasympathetic, as well as a sympathetic nerve-supply; Kuntz,[19] from his extensive studies of the autonomic nervous system, says it is abundantly supplied by nerves both of sympathetic and parasympathetic origin, but their rôle is little understood. From the action of various drugs on the ureter, Macht[20] concludes that there is evidence of innervation by the true sympathetic system and the parasympathetic system, and the

response of the ureter to nicotine points to the presence of ganglion cells in its wall. Like other smooth muscle viscera, the ureter and pelvis possess the inherent capacity to undergo rhythmic contraction, but their activity is probably subject to regulating nervous impulses. The dynamic theory, as it has been called, attributes the cause of hydronephrosis to "primitive disorders of the pyelo-ureteral peristalsis." The experimental investigations of Blatt [21] appear to show that the peristalsis of the ureter, and of the pelvis, is regulated by the neuroganglionic motor centres placed within its wall; and that the lesion of these centres gives place to pyelo-ureteral dilatation by paralysis and muscular atony. Such a lesion would account for the dilatation affecting mainly the pelvis, and the calices only to a lesser degree. Can the condition be due to some lesion of the autonomic nervous system? Overaction of the sympathetic control of a muscular tube produces a relaxation of the tube with failure of relaxation of the sphincter below. Now if this condition were present it might well produce a hydronephrosis; there would be an obstruction at the functional sphincter of the pelviureteric junction, and dilatation of the pelvis would take place more readily than of the kidney owing to the abnormality in its nervous control. Harris and Harris,[22] of Sydney, have performed renal sympathectomy in a number of cases, some of which showed dilatation of the renal pelvis. It is true that these cases mostly had pain, a thing which is so often absent in the early stages of hydronephrosis. These patients obtained relief from their symptoms.

Therefore, in an endeavour to suggest a cause for this condition of hydronephrosis, it seems to be necessary to attribute it to some disturbance of the neuromuscular mechanism, mainly because no other explanation appears to account either for the special dilatation of the pelvis or the presence of dilatation, in some cases, without mechanical obstruction. And it is believed that the various causes which have been or are put forward from time to time are secondary to the hydronephrosis and not the primary cause.

There is scarcely a disease in the whole of medicine the exact cause of which is known. In this respect, therefore, hydronephrosis falls into line with most other diseases. It seems probable, however, that in the case of hydronephrosis help is most likely to come from further investigations into the anatomy, physiology, and pathology of the neuromuscular mechanism of the renal pelvis and ureter.

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THE TREATMENT OF RHEUMATOID ARTHRITIS WITH GOLD SALTS INJECTIONS.

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THE treatment of rheumatoid arthritis is without doubt one of the most difficult problems in modern medicine, and in spite of the improvement in recent years the number of invalids due to this disease in most countries remains very high, and causes considerable expense to the States. The treatment of arthritis by physiotherapy undoubtedly remains one of the best methods, but the recent introduction of shock therapy has been an advance, and this has been followed by the extensive use of vaccines. The treatment is based on the fact that rheumatoid arthritis is in most cases due to an infective organism. Although some physicians differentiate between true rheumatoid arthritis—a disease affecting mostly women during the child-bearing period, and accompanied by intense vasomotor disturbances—and infective arthritis, occurring in old people causing little vasomotor disturbances, there does not seem to be any distinct difference between those forms.

Stock vaccines have been tried on a small scale in France, mostly streptococcal, but autogenous vaccines in England have not met with much enthusiasm. This treatment, which was once favourably accepted in England and the United States, seems to have led to disappointment. Most of these vaccines are collected from infective foci, which is not really a scientific method and does not produce the "pathogenic organisms" which cause the disease.

Recently treatment with chemical compounds has been tried: iodine intravenously; ammonium orthoxybenzoate in the United States, and iodalcoylates in France. This method gave some favourable results, but the need to repeat daily injections during months has robbed it of its practical value.

Chemotherapy has always appeared to me likely to be of great help in treating rheumatoid arthritis, since it is efficient in infective diseases, such as syphilis or tuberculosis. A certain amount of similarity between the latter disease and rheumatoid arthritis—i.e., impairment of the general condition, anæmia, leucocytosis, and temperature—led me to believe that some forms of treatment which had proved valuable for tuberculosis could help in the treatment of rheumatoid arthritis. This is why in 1928 I began to treat such patients with gold salts, the method introduced in treating pulmonary tuberculosis by Mollgaard in 1914. Only after I had commenced my work did I hear of the experiments of Feldt in Germany, who showed the curative action of injections with gold salts for experimental streptococcal infections in rabbits.

The gold compound which we have used is not the thiosulphate of sodium and gold used by Mollgaard and known in medicine under the name of sanocrysin, which can be used only intravenously. We have injected sodium aurothiopropanol sulfonate, which has been produced by A. Lumière, and is known under the name of allochrysine; its chemical formula is:

$$\begin{array}{l} CH_2—SAu \\ | \\ CH—OH \\ | \\ CH_2—SO_3Na \end{array} + \begin{array}{l} CH_2—SH \\ | \\ CH—OH \\ | \\ CH_2—SO_3Na \end{array}$$

There is a direct connexion between the gold and the sulphur which does not exist in thiosulphate. Allochrysine is slightly toxic, the lethal dose being 10 cg. per kg. in the case of a guinea-pig.

The gold salts treatment has proved of great value in all forms of infective and rheumatoid arthritis. We have especially directed our attention to the severe forms of the disease when numerous joints were affected, very often symetrically. Out of 48 cases, the result of which we shall report, only 40 per cent. were cases of less than two years' duration, 30 per cent. were of two to five years' duration, and 30 per cent. were of over five years' duration. In the first class of cases, where the disease is still in its infancy, there are synovial changes only, while cartilages and bones are still unaffected. When therefore the progress of the arthritis is stopped, recovery is complete, while in the older cases, when changes in the cartilages, displacements, and subluxations have taken place, there always remains a certain amount of functional impairment, even when the disease has been arrested.

LABORATORY TESTS.

Clinically we have found a moderate increase of temperature in 35 out of 48 patients; in only 10 per cent. of them was it possible to detect a definite focus which could be regarded as the cause of the disease. We have done a considerable amount of bacteriological research in the natural cavities of our patients and have made blood cultures; no great results were observed in spite of the fact that we frequently found streptococci, mostly of the *viridans* type, in the cavities; blood cultures were constantly negative.

We have observed in most of our cases a moderate anæmia and a definite leucocytosis, sometimes more than 20,000 per c.mm., a finding which confirms the investigations of Kahlmeter in Sweden. (Table I.) But the most striking feature of the changes in the blood of our patients was that of the resorcin flocculation test of Vernes, and of the sedimentation rate of the red corpuscles.

TABLE I.—*Hæmatological Examination Before and After Treatment (18 Cases).*

		Red corpuscles in millions per c.mm.			Leucocytes in thousands per c.mm.		
Corpuscles.		3 to 4	4 to 5	Above 5	5 to 10	10 to 15	Above 15
Cases	Before	5	14	0	1	6	12
	After	4	15	0	6	11	2

The resorcin flocculation test, which in a normal subject is below 30 with the Vernes method, has been over 40 in 80 per cent. of our cases, and sometimes up to 80 and 120. The sedimentation rate of the red corpuscles tested with the Westergren method is in normal subjects 3 to 6 mm. in one hour; it shows normal figures in osteo-arthritis, neuritis, and fibrositis. In rheumatoid arthritis, during the progress of the disease, 20 per cent. of the patients show figures between 20 and 30 mm., 30 per cent. between 30 and 50, 26 per cent. between 50 and 80, 5 per cent. being above this figure, sometimes up to 120 mm. Only 16 per cent. are between 20 mm. and 10 mm., which is already abnormally high, the average figure being 42 mm.

These two tests, which are not specific and are generally positive in infectious diseases and in tuberculosis, are most useful, not only from the diagnostic point of view but from the point of view of prognosis, and we test the blood of our patients at regular intervals to follow the effects of the treatment.

Other tests on the blood of these patients are generally negative; there is a slight exception with the complement-fixation test for gonococcus, which we have performed in a certain number of cases and which may be slightly or strongly positive in about 10 per cent. of the cases, sometimes quite unexpectedly. Our experience in this respect is still too limited, and we cannot draw definite conclusions, as Léri has done lately, but as far as the Wassermann test and the other serological tests for syphilis are concerned, they have been constantly negative, and our personal experience has been confirmed by our findings at the Cochin Hospital in Paris with Coste and Lacapère.

Syphilis does not seem to have any importance in the ætiology of rheumatoid arthritis; it would be very desirable to make a serological test for tuberculosis, but unfortunately none of the available methods can be considered specific. The resorcin test has been proposed by Vernes for the diagnosis of tuberculosis. The increase in the sedimentation rate has been observed in the same disease, but no definite conclusion can be drawn from it. Notwithstanding this, we are convinced that tuberculosis has more influence on the onset of rheumatoid arthritis than syphilis.

The result of chemical researches on the blood has been equally negative: in 24 cases we have had the following results:—

Urea.—Minimum, 0·28; maximum, 0·54; average 0·41 per 1000 c.cm.

Uric acid.—Minimum, 0·032; maximum, 0·072; average 0·043 per 1000 c.cm.

Cholesterin.—Minimum, 1·57; maximum, 2·40; average, 1·80 per 1000 c.cm.

These figures prove our statement that there is no gross metabolic change. In 15 cases where the basal metabolism was tested we did not find figures outside the normal limits.

METHOD OF TREATMENT.

Patients intended for treatment with gold salts, after having undergone a careful clinical examination, were submitted to the various tests which we have described, and the best results seem to have followed when there was a slight increase in temperature, moderate leucocytosis, and an increased sedimentation rate. Where some definite focal infection was detected, it was attended to before starting the treatment with gold salts; teeth were extracted, and infected nasal sinuses cleaned up; in two instances tonsils were removed.

The injections of allochrysine were given intramuscularly, generally into the gluteal muscles, and did not cause any pain or local reaction. The first series consists of three injections of 5 cg. at an interval of five days; if these injections do not cause any reaction, the series is continued by weekly injections of 10 cg. up to a total of 1·50 g. or 2 g., depending on the tolerance. Such a series lasts about three months. No more than 2 g. are given, and the daily dose should not exceed 2 cg., to prevent any toxic effect—for example, 5 cg. every fifth day would mean a daily dose of 1 cg.; 10 cg. every fifth day would mean a daily dose of 2 cg. When this first series is completed it is essential to give the patient a rest from any injections for six or eight weeks; after this period a second series similar to the first is given,

with the same rest interval at the end. When a result has been obtained it is essential to continue the treatment by subsequent series of 10 to 20 weekly injections of 10 or 5 cg. for a year or two.

The effect of the treatment is controlled by careful clinical examination and a study of the changes in the temperature curve, when there is a moderate temperature, but the best control is undoubtedly the blood examination. The decrease in the white blood corpuscles is a good prognostic sign, but even better is the decrease of the sedimentation rate of the blood corpuscles. This is the most reliable and sensitive test for the control of the treatment; whenever the sedimentation rate remains decidedly high, above 20 mm. for the first hour, it is certain that the progress of the disease has not stopped.

On the other hand, we consider that a patient affected with rheumatoid arthritis in whom the sedimentation rate has come back to normal figures (under 10 mm. during the first hour) may be considered cured if these normal figures have been constant for over a year after the completion of the treatment. We advise testing the sedimentation rate of the patients during the treatment at least once a month and, later on, once every second month.

STATISTICAL TABLES.

We have treated up to the present over 100 patients by this method, but we shall take into consideration only 48 cases which we have been able to observe and treat over a sufficient length of time. In such a chronic disease as rheumatoid arthritis, one cannot claim any success for a treatment unless two years have elapsed during which time results are thoroughly checked.

CLINICAL RESULTS.

The action of the gold salt treatment does not appear very quickly to clinical examination; at least two or three months elapse before definite changes in the condition of the patient are observed.

The effect on the general condition is generally very remarkable; a high percentage of our rheumatic patients were pale, with a sallow café au lait colour. After three months' treatment their colour became normal and they looked much stronger and less depressed.

The action on the joints is different in cases of short and long standing; in the first, when there was only a synovial swelling, this disappeared progressively in two or three months in favourable cases and the joints became completely normal again. In the older cases, where subluxations and stiffness accompanied chronic inflammation of the joints, the latter changes disappeared but the former were only slightly modified.

The main cause of invalidity among rheumatic patients is the pain on active and passive movements; this progressively diminished after one month or more, and from that time the movements of the different joints were greatly improved. Three patients who had been bedridden for four to six years were able to stand up and walk a few steps after the first series of treatment. By judging the amount of aspirin which patients take for their pains, so that they can go about their daily life, one can observe any improvement which takes place. In our experience two out of three of our patients who were taking six to eight tablets of grs. x every day could come down little by little to one or two tablets, and later on were able to discard them entirely. The body-weight showed in some cases an increase of a few pounds, but other patients lost a little weight when they were able to make a larger amount of physical exertion.

Like the treatment with mercury, bismuth, and arsenic, the gold salts also may cause reactions against which one should be on guard. Sometimes an increase of temperature and temporary rashes may occur; these appear in certain sensitive patients for no reason, and could be considered as anaphylactic phenomena; they did not prevent us from continuing the treatment.

Sometimes after six to eight injections toxic changes occurred. They consisted of two kinds: those on the mouth and those on the skin. We observed in 20 per cent. of cases a mild form of stomatitis with erosion of the lips and tongue, which was only severe in four cases. The skin reactions were mostly morbilliform rashes, and in five instances erythrodermia with subsequent desquamation. These various changes have been observed in 13 out of 26 cases, at the beginning of the experiment, when we were using daily doses which were three times or twice as large as that we have described. With our usual doses they occur very seldom (3 out of 22 cases), and they are of the very benign type provided one is careful. One should always ask the patient when an injection is to be made whether the preceding one has caused any irritation in the mouth or on the skin; if there is the least doubt about it, the next injection should not be given, and a sufficient length of time should elapse before the treatment is resumed. To prevent any affection of the mouth, the patients should clean their teeth with a tooth-paste containing arsenic.

EFFECTS OF THE GOLD TREATMENT.

The following results have been obtained after an experience of three years. Altogether they may be considered as very satisfactory considering the percentage of cases which have been not only greatly improved but almost clinically cured. Table II. sums up the results.

Very good results have been obtained in 17 cases; the patients were clinically free from symptoms, and every sign of progress of the disease disappeared in cases of short duration. In some cases we were so fortunate as to restore the use of the limbs, and the swelling of the joints disappeared, but as rheumatoid arthritis may persist for several years one does not feel justified in speaking of a cure.

TABLE II.—*Results of Gold Salts Treatment (48 Cases).*

Results.	Total dose.					Total.	Insufficient treatment.
	Below 1 g.	1 to 2	2 to 3	3 to 4	Above 4		
Negative ..	—	—	—	—	1	1	4
Moderate ..	3	4	1	—	2	10	—
Good ..	1	6	4	—	5	16	—
Very good.	2	4	3	4	4	17	—
Total cases	6	14	8	4	12	44	4

The very good cases and good cases number 33, or 70 per cent., and this percentage can be considered as a definite advance in the treatment of rheumatoid arthritis. The balance of our cases include ten partial results and five negative results. In three cases there was a temporary improvement followed by a relapse; of the disappointing results, most of the patients had not had sufficient treatment for one reason or another; in only one of them had the

treatment to be discontinued on account of an intolerance to the drug which had caused an increase of the joint symptoms and erythrodermia.

The patients who have been able to stand several series of treatments have got the best results, their total dose being 3, 4, or 5 g. of allochrysine; 9 out of 12 patients who received over 4 g. of gold salts have been considerably improved. Of the cases who received less than 1 g., 50 per cent. show poor results and 50 per cent. good results.

Judging the question from a clinical standpoint, we can state that after two series of 1·50 g. or 2 g. doses, it is useless to continue the treatment if the patient has not already obtained some definite improvement; when this improvement has been obtained, it is well worth while to continue the treatment, not only until the patient is free from symptoms, but for several months after the different biological tests, and especially the resorcin test and the sedimentation test, have come back to normal figures.

INDICATIONS AND CONTRA-INDICATIONS.

The treatment is justified in all cases of rheumatoid arthritis or infective peri-arthritis, as long as the disease is developing; its development is shown by clinical symptoms: pains, stiffness, swellings, disability, anæmia, and sometimes moderate increase of temperature, checked by blood examinations. Cases which respond best to the treatment are those accompanied by leucocytosis, high resorcin flocculation test, and accelerated sedimentation rate. Such cases of rheumatoid arthritis may be treated with great success in almost 70 per cent. of cases and with practically no danger, provided the liver and kidneys are in good condition and the blood pressure is not exceedingly high.

We have treated young patients and old patients. One patient over 70 responded favourably to small doses of 5 cg. per week; it is common to find that the development of arthritis in old people is not so severe as in middle-aged people.

Albuminuria.—Gold salts are contra-indicated in cases where tests show that the function of the kidney is greatly impaired.

Osteo-arthritis.—Whatever its localisation may be—hip, knee, or phalanges—osteo-arthritis is quite a different disease from rheumatoid arthritis, and where the blood is practically normal from the point of view of leucocytosis, the resorcin flocculation test and sedimentation rate, the gold treatment is not indicated. The same may be said of neuritis and fibrositis.

We do not consider that gold salts treatment should be given without the other treatments for arthritis, especially massage with active and passive movements; all kinds of physiotherapy prove of great value as an aid to the method. Hydrotherapeutic treatment—sulphur baths, douche-massage, mud baths—has been used by 60 per cent. of our patients, and has certainly helped to bring about a rapid improvement of the functions.

The method cannot be compared with shock therapy, as it does not cause any such reaction in most of the cases; it seems to be much nearer to the Metalsalt therapy which has been suggested by Walbum, of Copenhagen, from animal experiments.

In all the reported cases treatment has been given in the form of allochrysine injected intramuscularly; in a limited number of other cases which are not reported here, we have used thiosulphate of sodium and gold (sanocrysin, Crisalbine) injected intravenously; the results have been almost the same. We believe that the active element in those preparations is the metal gold, which is chemically combined with the sulphur, re-inforcing its action; those two chemical compounds of gold, sanocrysin and allochrysine, improve the action of the metal just as salvarsan improves the action of arsenic. Where colloidal gold has failed, allochrysine succeeds; it may be regarded as the best chemical for the treatment of rheumatoid arthritis.

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THE DETECTION OF PRESYMPTOMATIC TUBERCULOSIS IN CHILDREN.

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THE trend of modern work in tuberculosis lies largely in the direction of early diagnosis. Ideally, the infection must be detected before symptoms appear, for treatment at this stage holds out great hope of complete cure. In the case of children, radiology and the tuberculin test are the two most important means of securing early recognition.

In 1930 Kerley [1] read a paper to the British Institute of Radiology, in which he described the radiological appearances. His work, however, was done among patients of the Royal Chest Hospital, so that he was necessarily dealing with people who were ill and knew they were ill. It is not among these that we must look primarily for the presymptomatic stages of tuberculosis.

In order to investigate normal children, I selected 50 cases from the children's consultation centre at the St. Marylebone General Dispensary, who, although they had in times past attended the dispensary for various ailments, were at the time of their examination, so far as they or their parents knew, healthy. In order to obviate, as far as possible, the objection that this is not a series of healthy children, Table I. shows the ailments for which these children originally attended the dispensary. A glance at Table I. suggests that there can be few children who have not, at some time, attended a doctor or a hospital for ailments of this type.

TABLE I.

Ailments.	Children.	Ailments.	Children.
Cough	9	For examination ..	6
Nasal catarrh ..	4	Under weight ..	6
Tonsillitis	6	"Nerves"	2
Headaches	2	Glands in neck ..	1
Wax in ears ..	1	Enuresis	1
Scoliosis	1	Erratic behaviour ..	3
Diarrhœa and vomiting	1	Strabismus	1
Fractured humerus ..	1		50
Poor appetite ..	5		

In no case had the original examination revealed any sign of organic disease. These children were chosen because they were the first 50 children on the follow-up list who had not attended the Dispensary recently; they all came from London boroughs.

EXAMINATION ROUTINE.

The same routine was followed in each case. A thorough clinical examination was made, and any

statements as to the child's health by the parent were duly recorded. The child was then sent for radiological examination. If either of these examinations showed anything abnormal, a tuberculin test was done.

Perhaps a note of explanation is needed here. The tuberculin test is usually considered the method of choice when sorting out children for these investigations. In most cases the test is done, the children are divided into two classes, reactors and non-reactors, and the investigation proceeds from this point. In other cases the test is done to pick out the non-reactors, and they are taken as showing signs or appearances which may be considered normal. Most authors follow this sequence on account of the expense involved in radiological examination of large numbers of children. It is somewhat difficult to determine the percentage of children who, reacting to tuberculin, also show radiological evidence of tuberculosis, as compared with those who, being non-reactors, still show radiographic evidence of the disease. But in view of findings [2 3] at the Henry Phipps Institute in Philadelphia it seemed to me better to take X ray evidence as the starting point. In cases where there was any suspicion of non-tuberculous infection of the lung, a lipiodol injection was made.

For the purposes of this paper, those children who were found on clinical examination to have signs of bronchial catarrh, but whose radiological examination and tuberculin test were negative, have been classed as normals. Films were taken of each case. Where the term "fibrosis of the lungs" is used in this paper, non-tuberculous fibrosis is meant.

The *tuberculin test* was made intradermally by the method of Mantoux.[4] Pirquet's method has been repeatedly shown to give a smaller percentage of reactors. 0·1 c.cm. of 1 in 10,000 O.T. was injected intradermally; if no reaction followed, 0·1 c.cm. of 1 in 1000 was injected; if this again was negative, 0·1 c.cm. of 1 in 100 was injected, which is equivalent to 1 mg. A reaction which included a ring of erythema 10 mm. wide, with some œdema and raising of the skin, was classed as +; if the ring was as large as 15 mm. it was classed as ++. No other type of reaction was found in the series. In practice no child actually reacted to the third dose who had not reacted to one of the first two.

Tubercle bacilli.—In no case were tubercle bacilli found in the sputum.

Ages.—The average age of the children of the series was 7·3 years. All except four were between the ages of 5 and 12.

RESULTS.

The results of the examination were as follows:—

Normals	37	(74%)
Tuberculosis of childhood	4	(8%)
Apical infections	—	—
Fibrosis of the lungs	5	(10%)
Enlarged mediastinal glands	4	(8%)
	50	(100%)

That is to say, that out of 50 cases examined, 13 had demonstrable lesions of the lung, of which 8 were tuberculous and 5 were non-tuberculous.

Clinical examination.—The number of cases showing physical signs was 13. Of these, 9 showed scattered râles brought out on coughing only; 1 showed diminished air-entry to the right upper and middle lobes, and is classed as tuberculous; 3 showed impaired percussion note at one base with post-tussive crepitations, and are classed as fibrosis of the lungs.

The *tuberculin test* was done in 20 cases; of these 12 were positive and 8 were negative. Of the positives 7 were + and 5 were ++.

Of the 7 who were +: 1 was a case of fibrosis of the lungs (5); 2 were cases of tuberculosis of childhood (22, 37); 2 were cases of enlarged tracheo-bronchial glands (23, 27); and 2 were normals, one of whom had enlarged cervical glands (25, 42).

Of the 5 who were ++: 1 was a case of tuberculosis of childhood; and 4 were apparently normals.

Of the 8 who were negative: 1 was a case of tuberculosis of childhood; 1 was a case of non-tuberculous fibrosis; 1 showed enlarged mediastinal glands; and 5 were normals.

The incidence of exanthemata and other diseases was as follows:—

	Measles.	Whooping-cough.	Lung infections.	Other diseases.
Normal group	81%	62%	44%	10%
Abnormal group	83%	66%	50%	6%

Table II. shows details of the cases classed as tuberculosis of childhood, enlarged glands, and non-tuberculous fibrosis.

Contacts.—Only one case (No. 5) gave a history of contact with open tuberculosis, and this proved to be a case of non-tuberculous fibrosis. The tuberculin reaction was +. Two cases gave a family history of tuberculosis. One proved to be a non-tuberculous fibrosis, and the other was a case of tuberculosis of childhood. One author states that 91 per cent. of cases showing latent tuberculous lesions had no history of contact.

Underweight.—The question of the relationship of underweight to tuberculous infection in children is not settled. The balance of evidence is that there is no connexion between the two. Barnard, Amberson, and Loew [5] say that in their series of children the smallest number of reactors to tuberculosis was in those children who were underweight. No definite connexion was found in the present series between underweight and latent tuberculosis, or enlarged mediastinal glands.

Percentage of lesions found.—In the present small series 16 per cent. of the cases showed either latent lesions or enlarged mediastinal glands. It must be borne in mind that the cases were selected for further examination by X rays, and not by the tuberculin test.

CLINICAL EXAMINATION.

Attempts have been made to discover signs or symptoms which may accompany a change of reaction to tuberculin. The signs described as pathognomonic of enlarged tracheo-bronchial glands are indefinite, and although one has repeatedly tried to make the diagnosis before the X ray picture was taken, the number of correct diagnoses is small. It proved possible to diagnose only one out of four cases of latent tuberculosis by clinical examination alone, and three out of five cases of fibrosis of the lungs. In the four cases of enlarged mediastinal glands there appeared to be no physical signs.

The results of the intracutaneous tests have been given. It will be seen that three out of four cases of latent lesions gave a positive test to 0·1 mg. Out of four cases of enlarged tracheo-bronchial glands, two gave a positive reaction and two gave a negative reaction to 1·0 mg. of O.T. Some authors advise the standardisation of tuberculin. The tuberculin used in this series was supplied by Burroughs and Wellcome, and is stated to be standardised by guinea-pig injection. Out of seven cases, all of them finally regarded as being almost certainly potentially or actually tuberculous, three, or 42 per cent., gave a negative reaction to a large dose of O.T. The test was not done in one case of enlarged glands.

TABLE II.

Case	Age and sex.	Family history.	Clinical examination.	Tuberculin test.	Result.	Remarks.
			Cases of Tuberculosis of Childhood.			
3	3, F	Good.	Rhonchi both bases.	++	Resolution.	—
8	12, M	Father had rheumatic fever.	L. upper lobe hyperresonant. Scattered rhonchi.	−	Complete resolution.	In bed 3/12.
37	5, M	Good.	Lungs clear. Signs of healed rickets.	+	Complete resolution.	In bed 1/12 in hospital, 2/12 at home.
22	12, F	Father had "pleurisy," in good health now.	Diminished air entry. R. upper and middle lobes.	+	Improvement. Radiological appearances cleared.	—
			Cases of Enlarged Mediastinal Glands.			
23	6, F	Good.	Teeth carious. Nil else.	+	Good.	Mastoid operation, aged 2. Right-sided glandular enlargement.
24	7, F	Good.	Nil.	Not carried out.	—	Bilateral case.
27	11, M	S. has tuberculous cervical glands.	Very pale.	+	—	Right-sided enlargement.
48	3, M	Good.	Nil. ? underweight.	−	—	Bilateral case.
			Cases of Pulmonary Fibrosis.			
					PAST HISTORY.	
4	8, M	Good.	Tonsils + and red. Crepitations right base.	N.D.	"Pneumonia," aged 18/12. Measles, aged 4. Bronchitis, aged 5.	Has had pyrexial attacks at frequent intervals. Lipiodol injection.
5	5, F	Good.	Tonsils red.	+ve.	Measles and bronchopneumonia, aged 2. Bronchitis, aged 4. Bronchitis, aged 5.	Two sons of landlady died of phthisis when Case 5 aged 1. Lipiodol injection.
9	8, M	Father died of "asthma."	Rhonchi on coughing at both bases.	Not done.	Bronchitis, aged 4. Measles, aged 6.	Lipiodol injection.
13	5, M	Mother and father both had "pleurisy," now alive and well. Phthisis in father's family.	Nil.	Not done.	Whooping-cough at age 3. Measles, aged 4.	,, ,,
28	5, F	Good.	Impaired percussion note, left base. Crepitations on coughing.	−ve.	Measles, aged 1. "Pneumonia" (twice), aged 2. Whooping-cough, aged 4.	,, ,,

RADIOGRAPHY.

Cases of tuberculosis of childhood.—Out of the four cases described, two are of a similar nature (Nos. 8 and 37). In both cases serial films are shown, demonstrating the complete clearing of the lesion (Figs. 1 and 2). In Case 8 the lesion involves the base of the upper lobe of the left lung. The appearance is that of consolidation.

A first picture was taken on Nov. 10th, 1930, and ten days later a second picture (Fig. 1A) showed that the consolidation had increased in size very considerably; the shadow at the hilar end was much denser and extended right out to the radiological periphery of the lung, the direction being upwards and outwards, cutting the axillary border at the third rib. The child was put to bed, for it is uncertain whether consolidations of this type are going to retrogress. In one month the lesion had begun to clear. In an antero-posterior view it appeared to be stationary both at the hilar and peripheral ends, and to clear in the centre, the lower edge being still uniform. A picture one month later shows the consolidation cleared, except at the hilar end, and four weeks later the appearances are normal (Fig. 1B).

It seems that the consolidation was only just commencing when the child was first seen, for the second picture showed a spread. If this was so, the whole process of infection and resolution took place in slightly over three months.

The second case of the same type (No. 37) showed the consolidation in the right lung.

The first picture (Fig. 2A) shows the lesion involving the lung right out to the periphery; the second picture (Fig. 2B), three weeks later, shows almost complete retrogression. It seemed that the middle lobe was involved as well in this case, and the original picture appears to indicate some involvement of the diaphragmatic pleura. The whole lesion completely resolved, and a lipiodol injection made five months later shows no involvement of the bronchi. There was stated to be some loss of weight in this case, but it is difficult to be sure on this point.

These two cases are similar in almost every respect, except that one child was 12 years old and the other was 5. The sudden onset without symptoms, the rate of clearing, and the uniform consolidation are suggestive of a similar mechanism.

The third case (No. 22) is of a different order.

The child was a girl, aged 12, of delicate appearance. The tuberculin reaction was +, and she had a family history of pleurisy on the father's side, without any actual open tuberculosis. She said "she was always tired," but had no actual symptoms apart from this. The radiological appearances consisted of an area of soft infiltration under the second rib on the right side, only a few millimetres in diameter, with involvement of the tracheo-bronchial glands. Further, there was definite thickening of the interlobar pleura. Five months later, the peripheral lesion had completely cleared, and the interlobar pleura had resumed its normal appearance. There was at this time no radiological evidence of enlarged glands.

This child had occasionally been brought up by her mother at irregular intervals, so that we had some record of her weight over a period of time. There was no change in the weight curve; it shows a perfectly steady rise all the time.

The last case (No. 3) was a girl, aged 3, with a good family history. Her mother said she had always had a cough, so that she took no notice of this.

It did not appear to be any worse than usual at the present time.

The tuberculin reaction was ++. This child showed a wedge-shaped consolidation in the right lung, of uneven density, with mottled spots most noticeable at the level of the fourth rib in front; spots of infiltration were present in the periphery of the lung at the same level. She has, I believe, gradually recovered, but I have no plate showing the appearances after resolution. There was no evidence of enlarged glands.

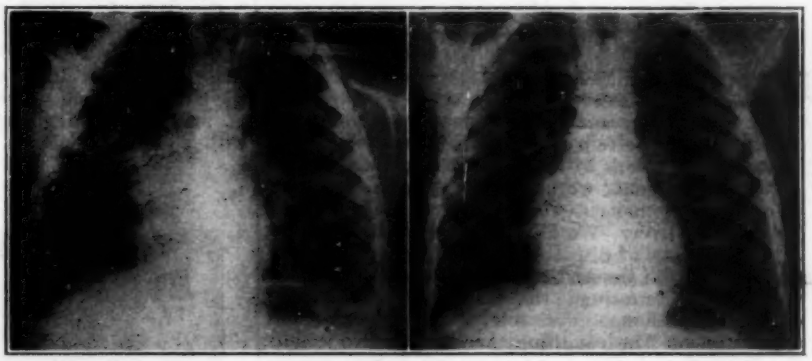
Cases of enlarged glands.—Of these, two (Nos. 23 and 27) are probably bilateral, and the other two are right-sided. Apart from the radiogram there was nothing to distinguish these cases. The two bilateral cases complained of being nervy or tired occasionally, and one child was very pale. The red cell count, however, was 5,000,000, and there was a relative lymphocytosis. The sedimentation curve was within normal limits.

Cases of fibrosis.—It is somewhat surprising to find so many early cases of fibrosis. Inasmuch as these are generally considered to be the result of past inflammations, I append a note of the number of attacks—pyrexial in nature and pulmonary in localisation—from which these children have suffered, as compared with the remainder of the series.

	No. of attacks per child.
Fibrosis of the lungs	Average 3·0
Remainder	,, 1·8

These children have had slightly more than one attack over their share. This figure includes measles and whooping-cough.

FIG. 2 (Case 37).



A, Large consolidation involving two and possibly three lobes of the right lung. Note tenting of the diaphragm. B, Five months later. The lesion has completely resolved.

FIG. 1 (Case 8).

A, Large consolidation running upwards and outwards in the base of the left upper lobe. The consolidation is uniform, and reaches the radiological periphery of the lung. B, The condition three months later, showing the lesion completely cleared.

CONCLUSIONS AND SUMMARY.

1. A survey has been made of 50 children, mostly of school age, who, although they have been patients at the Marylebone Dispensary, were at the time they were sent for considered healthy by their parents. Amongst the 50 have been found 4 cases of "latent tuberculosis" (tuberculosis of childhood), 4 of enlarged glands of the tracheo-bronchial group, and 5 of non-tuberculous fibrosis, making a total of 13 cases in all.

2. The tuberculin test gave the following results: of 4 cases of tuberculosis of childhood 1 was ++, 2 were +, and 1 was negative; of 4 cases of enlarged glands, 2 were +, 1 was negative, and 1 was not done. It is concluded, so far as it can be from such a small number, that the tuberculin test is no guide in a sufficiently important group of cases. As no case of tuberculosis of childhood developed, so far as is known, from contact with an open case of tuberculosis, it seems that there is still a large amount of accidental tuberculosis abroad—what the French call "tuberculose de la rue." In an American series,[5] 91 per cent. of children with radiological lesions had no history of exposure.

3. The probable period of development and resolution in favourable cases of "latent" tuberculosis in children is about three months.

4. The shape and extent of the lesion, by radiography, is apparently no guide to its severity, nor any indication of its prognosis.

5. Clinical examination and the tuberculin test are not altogether reliable guides to the presence of "latent" tuberculosis in children.

(*References at foot of next page.*)

CHANGES IN THE LIVER OF MICE
FOLLOWING THE INGESTION OF HYDROCARBON OILS.

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ZOOLOGIST TO THE MANCHESTER COMMITTEE ON CANCER:
AND
C. C. Twort, M.D. Aberd.,
PATHOLOGIST TO THE COMMITTEE.

In making an analysis of the results of many thousand post-mortem examinations of mice subjected to skin applications of various carcinogenic and non-carcinogenic agents we have been struck by certain microscopical changes which may at times be met with in the liver. We have, of course, encountered a great variety of diseases in the different organs of our animals, but the particular condition it is proposed to discuss is interesting in that it seems to be associated especially, although not solely, with mineral oil applications. The condition, hereafter called condition *x*, is depicted in the two accompanying micro-photographs, which show the main features of the infiltrative process (Figs. 1 and 2).

The earliest indication seen microscopically that condition *x* may supervene is a periportal infiltration of small round cells with which may be intermixed a few polynuclears. Such an infiltration is very common in mice, and alone is of little significance for it precedes many other pathological changes in this animal. But we have noted that it seems to be always present to a greater or lesser degree in livers showing condition *x*. Later there appear, scattered throughout the organ as isolated members or in small groups, cells giving a definite but not intense bichromate reaction. They are easily distinguished from the round cells with which they may be intimately mixed. These cells vary in size, but are usually rather large, moderately well defined, with a reticular cytoplasm containing a central or eccentrically placed smallish, round or irregularly shaped nucleus staining densely with hæmatoxylin. They thus have the appearance of endothelial cells, and some of them are very similar to the characteristic cells found in xanthomas. In point of fact, however, we are at the present juncture not prepared to say anything definite as to their origin, except that they are seemingly not a product of the parenchyma cells but would appear to rise either from the capillary endothelium or from connective tissue; probably the former. The large cells increase in number, presumably in situ, forming conspicuous masses, but never large enough to be visible to the naked eye. Subsequently disintegration supervenes, this being first indicated by a foamy appearance of the cytoplasm, and later vacuolisation. Ultimately the cell is completely replaced by what is presumably a fat globule with the resulting microscopical picture of a type of fatty infiltration. There is unquestionably a certain amount of fat in the cell residue, but whether of saponifiable or hydrocarbon nature we cannot yet say. Investigations in this direction so far carried out do not exclude the possibility of hydrocarbon oils being associated with the animal fat which is present.

(*Continued from previous page.*)

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ORIGIN OF THE CONDITION.

Our attention was first drawn to this question on examining the livers of a batch of animals painted for a considerable period with a sulphur-treated shale oil, almost all of which showed condition *x* of the liver. We had previously met with the condition in many isolated specimens from animals treated with all sorts of agents, but although noted it was then looked upon as a chance fatty infiltration of little significance. As a result of our findings in the shale oil treated animals, we proceeded to examine the livers of animals treated for a similar period of time with other agents, to try to find out whether condition *x* was peculiar to shale oil treated animals. The Table shows our findings in a few selected experiments, which will serve as examples of the kind of results to be expected.

FIG. 1.

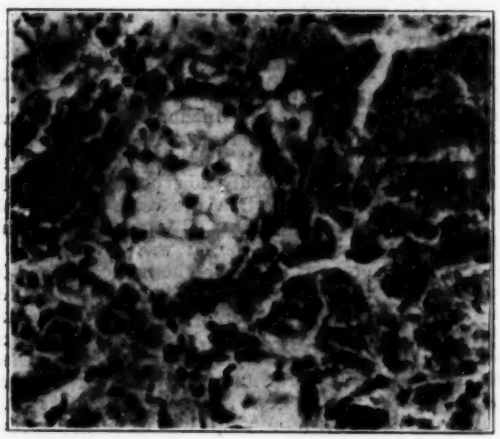
Liver of mouse treated with Pennsylvanian spindle oil, showing typical infiltrative changes. (× 82.)

Substance applied.	Duration of exp. in weeks.	No. of animals.	Condition *x*.	Per cent.
Diluted and acid treated shale oils	60	54	49	91
Refined shale oils	50	13	13	100
" " "	25	22	2	9
" " "	20	22	2	9
Shale oil residuum ..	50	16	1	6
Petroleum oil	60	49	38	77
" "	45	23	9	39
" "	40	125	40	32
Cotton-seed oil	50–90	25	0	0
Rape seed oil	50–70	7	0	0
Gas tar and synthetic tar ..	40	30	0	0
Synthetic tars	25	68	0	0
Total mineral oils	45–60	324	154	48
Tars and saponifiable oils ..	40–80	130	0	0

The Table is almost self-explanatory. From our preliminary observations it appears that gas tars, synthetic tars, and saponifiable oils do not excite condition *x* of the liver. On the other hand any mineral oil, disregarding the degree of unsaturation, seems capable of giving rise to the condition, provided

survival is sufficiently long to give the oil a chance of acting. However, it is not improbable that the extent of the disease may bear some relation to the degree of unsaturation of the hydrocarbons responsible, shale oils being very active in this respect. If medicinal liquid paraffin is considered to be completely saturated, then unsaturation does not seem to be the essential cause at work, for condition *x* of the liver apparently results from contact of animals with white mineral oils. Synthetic tars diluted with liquid paraffin twice induced condition *x*, as did very frequently spindle oils of mineral origin rendered non-carcinogenic by treatment with large amounts of

FIG. 2.



Liver of mouse treated with medicinal liquid paraffin and 25 per cent. shale oil, showing earlier stage than Fig. 1, with degenerating foamy xanthoma cells. (× 500.)

sulphuric acid, and from which almost all the unsaturated compounds were consequently destroyed or rendered saturated. Needless to say, further experiments with medicinal liquid paraffin are now being undertaken to investigate more thoroughly the effect of such oil on the liver. It will be noted that only one out of the sixteen animals examined which were painted with the residuum of shale oil showed the condition, and consequently it appears that the toxic substances concerned may be mostly confined to the lighter boiling fractions of the oils we utilised. Also we are inclined to believe that the crude oils and oil extracts are less likely to lead to condition *x* of the liver than the refined oils; and in view of the inactivity of tars the possibility of inhibitory substances has to be considered. We are not at all certain that oils from all fields are similarly active. These questions will need further investigation, especially in relation to other pathological conditions which may mask or otherwise interfere with the infiltrative process with which we are concerned.

The duration of time of exposure and the amount of oil which finds its way into the organism are bound to be important factors, but as will be seen from the Table we have found that, at least with shale oil, it does not require many weeks to elapse before evidence of condition *x* is forthcoming.

Our examinations thus provided ample evidence that some of the hydrocarbons constituting the mineral oils utilised by us, or that some specific constituents, were capable of inducing condition *x* in the liver of our animals, while the specific constituents did not appear to be present in gas tars, synthetic tars or saponifiable oils.

A few quite recently examined livers have, however, rather complicated matters, although at the same time they have served to throw some light on the probable nature of the chemical substances responsible. Thus the livers of 5 out of 15 animals painted with oleic acid heated at 330° C. for 72 hours showed condition *x*. We attributed this result to the synthesis of hydrocarbons on heating the acid, but subsequently the condition was found in two animals painted with untreated oleic acid. Furthermore, we have twice encountered condition *x* of the liver among 23 specimens from animals painted with a fraction of our synthetic tar obtained by treatment with ethyl oxalate, resulting in the extraction of compounds with a reactive methylene group. The results with oleic acid fit in quite well with those given by mineral oils in view of this acid's chemical relation to the olefines, but that the particular aromatic compounds in the tar should induce condition *x* puts an altogether different aspect on the subject. It must be understood that although we have in no instance encountered condition *x* of the liver in unpainted animals, it is not to be assumed that a similar finding will not be met with among such animals. It must also be emphasised that our tar experiments are relatively of short duration, and it is very probable that animals painted over a longer period of time would provide specimens of condition *x* of the liver.

OTHER ORGANS AFFECTED.

We have mentioned the liver as if it were the sole organ affected, but we have occasionally seen in the spleen, suprarenal glands and ovary a condition which bears a good deal of resemblance to condition *x* of the liver. It is probable that the chemical substance responsible for this particular pathological change gains access to the internal organs by way of the alimentary tract and not by direct absorption by the skin. We have no very exact experimental data to bring forward in support of this assertion, but that the animals ingest much of the material painted on the skin is beyond dispute.

In connexion with these observations on the mouse, there are two papers which must be referred to. One is by C. J. Polson [1] on experimental liver necrosis induced by shale oil, and the second by H. J. Channon and G. A. Collinsoh [2] on the increase of non-saponifiable fats in the liver of rats and pigs fed on a synthetic diet containing medicinal liquid paraffin.

[1] Jour. Path. and Bact., 1931, xxxiv., 1.
[2] Biochem. Jour., 1929, xxiii., 676.

TRAINING OF SOCIAL WORKERS IN MENTAL HEALTH. A course in mental health is being arranged at the London School of Economics and Political Science to meet the needs of social workers whose services demand a more specialised knowledge of the causes and treatment of psychological difficulties than has hitherto been available in the general training in social science. The course lasts one year and includes both theoretical and practical training. Suitable candidates are admitted by a selection committee, preference being given to men and women who are over the age of 23, who hold a University certificate in social science, and have been engaged in social work. Consideration will be given to others with experience of responsible social work who, while they hold no University qualification, have reached a high standard of general education. With the help of the Commonwealth Fund of America the school is offering six scholarships to meet the expenses of students during training.

CLINICAL AND LABORATORY NOTES

ARTIFICIAL PNEUMOTHORAX.

TWO HUNDRED CASES.

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AND
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THE following figures summarise the results of cases of pulmonary tuberculosis treated by artificial pneumothorax at Winsley Sanatorium during the past seven years. These results are from selected cases where an artificial pneumothorax was employed after failure of routine sanatorium treatment to effect improvement, and deal mainly with cases of moderately advanced disease. They will not, therefore, be entirely comparable with American and Continental figures, for in Canada, America, and on the Continent many more early cases are subject to collapse therapy.

Artificial Pneumothorax Attempted in 200 Cases.

	Successful induction.	Failed to induce.	Total.
Alive	94 (57%)	12 (38%)	106 (53%)
Dead	72 (43%)	22 (62%)	94 (47%)
	166 (83%)	34 (17%)	

Class.	Gain or loss in weight.*	Alive.
Of 200 cases in which A.P. was induced—		
7 were in Class 1	Gained weight 47%; of these 77%	
53 ,, ,, 2	Lost weight 50%; of these 21%	
40 ,, ,, 3	Remained stationary 3%	

* These figures are based on admission and discharge figures, the average duration of residence in hospital being 6½ months.

Sputum. Before induction—
87% of the patients were T.B.+
13% ,, ,, ,, T.B.− or had no sputum.
On discharge—
54% were T.B.+; of whom 33% are alive.
46% ,, T.B.− or had no sputum; of whom 65% are alive.

Period since induction.	Nos. attempted, S = Successful; F = Failed.		Number alive.	Per cent. alive.	Number dead.	Per cent. dead.
Under 6 mths. ..	22	S 17	15+1*	94	1*	6
		F 5	5	100	—	—
6 to 12 mths.	25	S 19	13+1*	74	4*+1	26
		F 6	5	83	1	17
12 to 18 mths. ..	20	S 17	13+1*	82	2*+1	18
		F 3	—	—	3	100
18 mths. to 2 yrs. ..	32	S 24	18+2*	83	4*	17
		F 8	2	25	6	75
2 to 3 yrs...	35	S 29	10+3*	45	12*+4	55
		F 6	1	17	5	83
3 to 4 yrs...	36	S 31	9	29	15*+7	71
		F 5	—	—	5	100
4 to 6 yrs...	24	S 23	7	30	10*+6	70
		F 1	—	—	1	100
6 to 7 yrs...	6	S 5	1	20	3*+1	83
		F 1	—	—	1	100
Total ..	200					

* In cases so marked the treatment by refills had to be discontinued. (*a*) In those alive, because of adhesions causing failure to produce satisfactory collapse. (*b*) In those who died, owing to deterioration of condition.

A certain section of the profession is still sceptical about the value of the treatment, but even if in some cases the results are not permanent yet, to use the words of the late Dr. Clive Riviere, the prolongation of life, increased comfort and wellbeing, and return of power to work—and this for the most part among cases of advanced disease—entitle the operation of pneumothorax to a very high place among successful therapeutic measures.

RAPIDLY ADVANCING TETANUS SUCCESSFULLY TREATED WITH SERUM.

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DIRECTOR OF THE PATHOLOGICAL DEPARTMENT, HOSPITAL FOR SICK CHILDREN, GREAT ORMOND-STREET, LONDON.

AUTHORITIES are by no means unanimous as to the value of anti-tetanus serum in the treatment of tetanus after the disease has clearly declared itself, whereas the experience gained during the Great War showed conclusively that as a prophylactic against tetanus the injection of antitetanic serum was often of considerable value. Sir David Bruce [1] in an analysis of 1000 cases of tetanus concluded that prophylactic inoculation of potential cases certainly reduced the number of cases in which actual symptoms developed, prolonged the incubation period, and diminished the rate of mortality in those in whom symptoms did develop. It has long been recognised that the shorter the incubation period the higher is the mortality-rate, and in the cases analysed by Bruce the mortality-rate was 63·4 per cent. in cases in which the incubation period was seven days or less, and 54 per cent. in which the incubation period was eight to fourteen days. Golla, criticising these results, expressed the opinion that Bruce's figures showed that the question of dosage did not help at all in determining if serum had any therapeutic effect, while C. H. Browning said that Bruce's and Golla's figures would seem to show the almost utter uselessness of anti-tetanus serum as a therapeutic agent. This gloomy view was not supported, however, by Sherrington's [2] observations of experimental tetanus in monkeys, in which the best results were obtained by introducing the serum subdurally by the lumbar or bulbar intrathecal routes.

CASE RECORD.

The following case presents several features of interest.

The patient, a boy aged 10 years, fell on a gravel path on June 9th, 1931, and injured his knee. Dr. A. E. Campbell, of Guildford, attended to the injury, and at once cleaned up the wound with iodine, and inserted one suture. This, however, was removed next day because the wound was then suppurating. Dr. Campbell and his partner, Dr. Arthur Mitchell, discussed the question of giving anti-tetanus serum and decided against it because the boy had fallen on a gravel path, which was unlikely to be infected with tetanus. A few days later Mr. E. W. Sheaf, of Guildford, saw the patient with Dr. Mitchell and discussed the advisability of opening up the wound, the question of anti-tetanus serum being again discussed and the measure decided against. The temperature, which had never been higher than 101° F., settled down, but began to rise again on June 24th, when stiffness of the jaw was first noticed. Within an hour an injection of 13,000 units of anti-tetanus serum was given intramuscularly. The wound was again examined on the 24th and a small sinus which contained pus was laid open. Dr. R. C. Matson, pathologist to the Royal Surrey County Hospital, examined the discharge from the wound, but failed to find any evidence of tetanus in smears or by culture. At 10 A.M. on June 25th a second dose of serum (20,000 units) was given intramuscularly and the boy appeared well, except that he took long over his breakfast owing to the stiffness of the jaws.

Dr. Eric Pritchard and I saw the boy shortly before 4 P.M. on that day, when trismus, opisthotonos, and risus sardonicus were well marked, while painful spasms of the abdominal muscles recurred at frequent short intervals. These alarming symptoms had all come on rapidly since 2 P.M. on that afternoon, possibly as the result of opening up the wound—which in the circumstances may have seemed desirable—and thereby liberating toxins into the system while there was little antitoxin present to neutralise

these. We decided not to examine him any further but to initiate serum treatment forthwith.

Under a general anæsthetic 20 c.cm. of perfectly clear cerebro-spinal fluid was withdrawn and 40,000 units of antitoxin in 13 c.cm. serum (B. W. & Co.) injected intrathecally. At the same time 40,000 units were injected intravenously and 40,000 units intramuscularly. Owing to the rapidity with which the symptoms had advanced that day, a very grave prognosis was given by Dr. Pritchard and the other medical men in attendance. At 5.30 P.M. chloretone, grs. 15, was given by rectum and at 7.45 P.M., as the opisthotonos and abdominal rigidity recurred, a further grs. 10 were given again by rectum. At 8.20 P.M. the patient was very collapsed and 0·2 g. of camphor in olive oil was injected subcutaneously. The wound was syringed hourly with eusol. The temperature rose to 102° F. at 10 P.M. but the patient passed a fair night. At 12.30 A.M., as the muscular spasms were frequent and severe, Dr. Mitchell and his partner, Dr. H. Bell, decided to give a subcutaneous injection of 20 c.cm. of a 25 per cent. solution of magnesium sulphate, and Dr. Bell, who remained with the patient for some hours to watch the effect, states that the spasms and muscular rigidity were definitely relieved by the injection.

On the morning of June 26th the boy complained of pain at the back of his neck, and in the eyes and abdomen, but the spasms were at longer intervals than on the previous day. At 12.30 P.M., under a general anæsthetic, lumbar puncture was again performed, the fluid spurting out under considerable pressure; about 30 c.cm. of turbid fluid was removed for subsequent examination, and 40,000 units of anti-tetanus serum in 13 c.cm. were given intrathecally and 60,000 units intramuscularly. Four rectal injections, each of chloretone grs. 10, were given during the ensuing 24 hours on account of restlessness or abdominal rigidity.

On June 27th I was unable to visit the patient and my colleague, Dr. A. Gordon Signy, kindly deputised for me. He reported that the rigidity had greatly diminished and there was no spasm of the jaw, but the abdomen was still boat-shaped. About 30 c.cm. of turbid cerebro-spinal fluid was again drawn off under pressure and 40,000 units of antitoxin in 13 c.cm. of serum diluted with 10 c.cm. of saline were injected intrathecally; at the same time 60,000 units were given intramuscularly. The patient was now obviously responding to the treatment, and on June 28th he was given 60,000 units intramuscularly by Dr. Mitchell; irritability and restlessness were treated with chloretone, grs. 5, when required.

On June 29th he was still rather irritable and complained of headache, so lumbar puncture was again performed. This time the fluid was not under pressure and was clearer than it had been; 25 c.cm. were removed and 20,000 units in 6·5 c.cm. +10 c.cm. of saline were injected intrathecally, and 60,000 units intramuscularly. The patient was now eating and sleeping better and was definitely brighter than he had been. On June 30th and July 1st and 2nd he had 40,000 units each day intramuscularly and 20,000 units on the 3rd. As he was now apparently convalescent and there were no more tetanic spasms, the chloretone and serum were discontinued. On the morning of July 1st, just a week after the first dose (4 c.cm.) of serum was injected and when a total of 173 c.cm of serum had been given by the three routes (13 c.cm. intravenously, 45·5 c.cm. intrathecally, and 114·5 c.cm. intramuscularly), the patient was very restless and complained of irritation of the back and legs, and during the day a papulo-erythematous rash appeared on the lower part of the back and on the face. The rash and irritation of the skin persisted until July 3rd, when contramine, 0·125 g. in 2 c.cm. of saline, was injected intramuscularly twice.

The irritation was finally overcome by the injection of 1 c.cm. of adrenalin solution (July 5th). The patient complained of pain in the left shoulder and the back of the neck for a few days (July 6th, 7th, and 8th), and of headache, but these were easily controlled by aspirin and bromides. Apart from a slight epistaxis on July 11th and 12th, the patient had an uneventful convalescence, and at no time were the joints affected. Except on one occasion—on the evening of the day that the serum was given by all three routes, when the temperature rose to 102·2° F.—the temperature never exceeded 101° F. even when the serum rash came out. There was never any difficulty with the passage of the urine, but the bowels were often difficult to move.

THE CEREBRO-SPINAL FLUID.

As is usual in tetanus, the first specimen of cerebro-spinal fluid examined was clear and normal in all respects. On June 26th, about 20 hours after the intrathecal injection of serum, the fluid which was obtained under pressure was turbid and gave a purulent sediment on centrifuging; it obviously contained several thousands of cells per c.mm.—almost all polymorphs. The albumin was 0·14 per cent. (it had been 0·02 per cent. the day before), there was good reduction of Fehling's solution, and no organisms were seen in films or obtained by culture. There was obviously a marked meningeal reaction to the injected serum but no true bacterial meningitis. On June 27th, after the second injection, the fluid was less turbid, and the cells numbered 3400 per c.mm. with 98 per cent. of polymorphs, protein 0·04 per cent., good reduction of Fehling's solution, and chlorides 7·0 g. per litre. No organisms were found in films or cultures. On June 29th the fluid was not under pressure and was clearer. The protein was 0·04 per cent., sugar was present, chlorides 7·2 g. per litre, and cells 165 per c.mm. (65 polymorphs and 100 mononuclears).

DISCUSSION.

Although it is impossible to conclude from an isolated case that antitoxin is of value in the treatment of tetanus, it was the unanimous opinion of all who saw this boy that at the time the serum treatment was begun the symptoms were advancing with alarming rapidity and that the serum appeared to check this advance and to promote recovery. Between June 24th and July 3rd no less than 633,000 units of tetanus antitoxin (B. W. and Co.) in 205·5 c.cm. of serum were administered; 40,000 units (in 13 c.cm. serum) on one occasion intravenously; 140,000 units (in 45·5 c.cm. serum) in four intrathecal injections; and 453,000 units in eleven intramuscular injections. Most authorities advise against intravenous injections of the serum on account of the risk of anaphylaxis. The Tetanus Committee of the War Office stated that the intravenous route is the most rapid method of neutralising the toxin, but dangerous on account of anaphylactic shock and "only to be recommended where the intrathecal route was impossible." In a disease like tetanus, where early and thorough treatment is of vital importance to the patient, it is permissible to take a certain risk, and in this particular instance the symptoms advanced so rapidly that the intravenous route was decided upon as being urgently necessary.

Should time permit it is advisable to give a small trial dose—e.g., 1 c.cm. of a 1/10 dilution of the serum intravenously—before giving the full dose of undiluted serum. J. W. West [3] stresses the importance of an intravenous injection of serum, in addition to the intrathecal and intramuscular injections, mentioning at the same time the danger of anaphylactic shock. He also states that the dosage should be as large as possible. Subsequent writers, such as Romanis and Mitchiner,[4] Carnegie Dickson,[5] Da Costa,[6] and Worster-Drought [7] are all against the use of serum intravenously.

The intrathecal injection of serum on several days is of the greatest value in the treatment. The meningeal reaction to the serum, the so-called "aseptic meningitis," is well shown in this as in most cases by the records of the cerebro-spinal fluid examinations, and although at first sight the turbid fluid may give the impression that a true meningitis was present, the presence of sugar in the fluid, the maintenance of the percentage of chlorides, and the absence of organisms in films and cultures all go to prove that such is not the case.

The effect of the injections of contramine in combating the symptoms of serum sickness was striking, and the use of the drug for this purpose is to be strongly recommended.

It is possible that the reason why anti-tetanus serum has not in the past been found of much value in the treatment of frank tetanus is that the dosage has been inadequate. Now that a very potent serum is commercially available, it is possible to give a patient a large number of units of antitoxin

(*Continued at foot of next page.*)

MEDICAL SOCIETIES

ROYAL SOCIETY OF MEDICINE.

SECTION OF OBSTETRICS AND GYNÆCOLOGY.

A MEETING of this section on Feb. 19th, with Mr. VICTOR BONNEY, the President, in the chair, was devoted to a discussion on

Gonorrhœa and Other Cervical Discharges.

Colonel L. W. HARRISON said that at most clinics all vaginal discharges were treated on the same lines as gonorrhœa, and no attempt was made to differentiate between them. Some attempt to make a definite diagnosis in order that treatment might be directly purposeful would be better. By means of microscopical and cultural investigation, and by the use of the complement-fixation test a definite decision could be reached. In many of his own cases, he was convinced, the gonococcus would have been missed if cultural tests had not been employed; the complement-fixation test was also valuable and gave some indication of progress. It should be possible to decide quickly whether a discharge was due to the gonococcus, to bacteria other than the gonococcus, or to chemical irritation. Cases due to chemical irritation, where douching had been employed for years, often cleared up rapidly when treated with a masterly inactivity. In cases due to bacteria other than the gonococcus the organisms were superficial and accessible, and a properly directed frontal attack sufficed to cure the condition. He was confident that a large number of vaginal discharges were wrongly diagnosed as gonococcal in origin. The use of strong antiseptic solutions for such cases only destroyed the mucous membrane and made it susceptible of invasion. The preparation chosen should be that which did least damage to the tissues when applied in a strength sufficient to destroy the organisms. He preferred to use mercurochrome in a 10 per cent. solution; this was applied to the cervix on a swab which was left in place, or changed once or twice, while the vagina was painted with the same solution. Vaginal douches alone were useless in cases where the infection was situated in the cervix.

In gonorrhœa the infection was intra- and periglandular, and a frontal attack was less likely to be successful; reliance must mainly be placed on exploiting the patients' powers of resistance. Local treatment could only neutralise the toxins and promote drainage, and if pushed too far might weaken the resistance of the tissues. Although vaccines might appear to be ineffectual if used blindly, there were a number of cases in which the gonococcus had persisted for months in spite of treatment, and where the complement-fixation test was negative or mildly positive; in these the use of a vaccine was nearly always followed by a rise in the titre of the complement-fixation reaction and the disappearance of the gonococci. In some of these cases a small dose of vaccine produced a vigorous general and focal response, and in others large doses were tolerated with little effect. He urged the importance of a wider use of vaccines in the treatment of chronic gonorrhœa. Where the use of a vaccine was found to raise the titre of the complement-fixation reaction, without an accompanying disapearance of the gonococci, glycerin drainage by the Remington Hobbs method was often useful.

INFECTION AND TREATMENT.

Mr. J. JOHNSTON ABRAHAM had attempted to decide in what proportion of cases the gonococcus could be isolated. Out of 1000 consecutive cases of vaginal discharge in adult women attending the London Lock Hospital, the gonococcus had been isolated in 411. In 437 the gonococcus was not found although the discharge was venereal in origin; the discharge was non-venereal in 152. It appeared to be more difficult to isolate the gonococcus in pregnant women. When the gonococcus was not present, cultural examination usually showed a variety of other organisms; the presence of a hæmolytic streptococcus in the cervix was a contra-indication to induction or curettage. Secondary organisms tended to maintain the inflammation after the gonococcus had disappeared, and shock therapy might be useful in such cases.

It was difficult to decide on any criteria of cure. Two infallible tests could never be performed by the medical practitioner: one was the inoculation of the conjunctival sac of a baby with the discharge, and the other the inoculation of the male urethra. Nature, however, performed these tests without compunction. Other tests were substitutes for these and included clinical evidence, the evidence of smears and cultures, and the complement-fixation test. He did not consider that this test had any value as an indication of cure, because if the patient's antibody production was poor the test would be negative, while a vaccine could provoke a positive reaction even in a normal person. Moreover, in a patient with sealed tubes, who was not contagious, the test would be positive. As an indication of progress, however, the test was valuable.

Various intravenous injections, including salvarsan, mercurochrome, hexamine, and many others, had been tried in the treatment of gonorrhœa; he had experienced little success with intravenous remedies except S.U.P.36. Drugs by mouth had little effect; he shared Colonel Harrison's views on vaccines. Pyrotherapy had recently been tried; this entailed raising the temperature of the patient to a point at which it was injurious to the gonococcus. Milk and T.A.B. injections and infection with malaria had all been employed. He deprecated the use of malarial infection in treating such patients;

(*Continued from previous page.*)

in a relatively small volume of serum, though doubtless in hospital practice the cost of the serum rather militates against its use. The prevalent fear of injecting the serum intravenously is also perhaps a contributory cause of the unsuccessful results of serum treatment.

I should like to thank Dr. Mitchell and Dr. Pritchard for giving me the opportunity to treat and report this case; also the other practitioners and the nurses whose care contributed to the successful issue.

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although it was not a matter for grave regret if a patient with G.P.I. succumbed to treatment, the doctor felt differently about a patient suffering from gonorrhœa which seldom had a fatal termination when untreated.

The use of strong antiseptics on the vagina such as lysol, alum, and copper sulphate, might lead to a chemical vaginitis; the vagina was almost completely insensitive, or such strong preparations could never have been used. He employed diathermy in chronic gonorrhœa with arthritis, but where there was a secondary infection in the cervix he believed that better results were to be obtained by ionisation. Where the cervix was torn, severely infected, and eroded excision might be necessary; the danger of sterilising the patient need not be considered for she was usually sterile already. A pessimistic view used to be taken of gonorrhœa in the female, but nowadays, if the patient was treated early, he believed that she could be cured nearly as quickly as the male.

ACTION OF REMEDIES.

Dr. T. ANWYL-DAVIES said that experiments had been carried out to decide how deeply silver nitrate and picric acid solutions penetrated the cervical mucosa; it had been found that neither penetrated to a distance of more than one-sixteenth of an inch, and that they led to the formation of a tough plaque on the surface which impeded drainage. Although it was accepted that the cervix and urethra should be treated in gonorrhœa, the uterus was usually omitted. He felt sure that in a number of cases the uterine wall was infected. This explained the boggy, tender condition of the uterus so often found on bimanual examination. The organisms were too deeply embedded to be dislodged by menstruation or curettage. Although the gonococcus was easily killed in vitro at 106° F., a temperature of 112°–114° F. in the cervical canal, produced by diathermy, failed to kill the organisms, even when applied for 30 to 40 minutes twice weekly, for a period of 8 to 12 weeks; indeed, the immunity of some patients appeared to be lowered by the treatment. He believed this to be because the high local temperature was only superficial, and that a little deeper in the tissues, the optimum temperature for the incubation of gonococci was produced.

In an acute first attack of gonorrhœa the patient took between two and three weeks to develop antibodies, but in a second attack antibodies were produced within a week; this indicated that it should be possible to stimulate antibody formation if the right antigen could be found, but gonococcal vaccines, so far, had not been successful. He looked upon the complement-fixation test as analogous to the Wassermann reaction; if it was positive it indicated a gonococcal focus somewhere in the body. He regarded it also as a test of cure; if a patient in whom the test was positive was placed under treatment there came a stage, usually about six weeks later, at which the test became negative; this indicated that the gonococci had been eradicated. In his opinion protein shock lowered the resistance of the patient. The results of protein shock in gonococcal arthritis might be spectacular but he preferred to relinquish them in favour of treatment with simple antipyretics, because he knew that the ultimate cure of the patient would be retarded by shock therapy. Malaria gave a mortality of about 10 per cent. and he did not care to use this method of treatment in gonorrhœa. At the London Hospital the Wassermann reaction, the complement-fixation test, and the Kahn test were performed for each new patient, and cervical and urethral smears and cultures examined. Treatment consisted of irrigation with sodium bicarbonate, and afterwards with chloramine T. and salt; a gauze drain soaked in glycerin was then inserted into the cervix, and the vagina was packed with glycerin gauze. Patients attended daily for treatment, and came readily. After three weeks the discharge had usually disappeared and the patient felt well. At the end of each month of treatment all the preliminary tests were repeated, and when these were all normal and the complement-fixation test negative, dismissal was considered. It was impossible to distinguish clinically between a vaginal discharge due to the gonococcus and a discharge due to other organisms; laboratory confirmation was all-important. Among 200 consecutive cases, 102 had been gonococcal. Erosion had been slightly commoner in non-gonococcal than in gonococcal cases. The complement-fixation test had been positive at the first attendance in 60 of the gonorrhœal cases and negative in 42, but many of them were acute cases, and the test might take up to three weeks to become positive. In 200 consecutive cases of gonorrhœa, the gonococcus had been present in smears and cultures in 120, in smears only in 20, and in cultures only in 60. For the treatment of gonorrhœa some solution was wanted which would kill the gonococcus by autolysis, in the same way that the pneumococcus was autolysed by an intracellular enzyme. It had been found that the action of the intracellular enzyme on the pneumococcus was enhanced by sodium desoxycholate, and he had recently been employing this drug as a local application in strengths up to 1 in 200. It appeared to be effective in the early acute stage, but later glycerin drainage was more valuable.

DISCUSSION.

Dr. LYNETTE HEMMANT agreed that the aim must be to differentiate between acute and chronic gonorrhœa and vaginal discharges due to other causes. Laboratory tests were essential. With late, vague cases the problem was to decide whether they were the end-products of chronic gonorrhœa, and if so, whether they were still infective; and if they were not gonorrhœal, whether they should be sent elsewhere for treatment. I. N. O. Price in 1929 had described a method of recognising gonococcal colonies after 24 hours' culture; this depended on an oxidase reaction, a pink colour developing when the reagent was added. Dr. Hemmant believed that the complement-fixation test was a valuable indication of progress, waning as the case improved. She preferred to use 10 per cent. mercurochrome alternating with mercurochrome in glycerin or 2 per cent. acroflavine in glycerin. It was important to reassure and encourage patients, many of whom were despondent of cure at the outset.

Mr. DAVID LEES said that if the clinical picture and laboratory tests were negative it should not be assumed that gonorrhœa was absent; the examination and tests should be repeated at a time when the patient had not douched or emptied her bladder for some hours. Patients with vaginal discharge fell into three groups: those in whom the diagnosis, clinically and bacteriologically, was gonorrhœa; those in whom the clinical picture and the history suggested gonorrhœa, but who gave negative laboratory tests; those in whom there was no evidence of infection by the gonococcus, but in whom there was evidence of infection by other organisms. Patients in the third group should be sent elsewhere for treatment as it was unfair to let them bear the stigma

of attending a venereal diseases department. The primary principles of treatment in gonorrhœa were physical and mental rest, and attention to general hygiene. If all acute cases could be admitted to hospital until after the next menstrual period the incidence of tubal infections, he believed, would be cut down by 75 per cent. In treating urethral infections he preferred to use permanganate of potash or albargin which promoted mild venous congestion and improved drainage. Strong antiseptics might do damage; for urethral treatment he would not use mercurochrome in a stronger solution than 2 per cent. For the cervix he used picric acid, and thought it extremely important, after swabbing, to dry the vagina with magnesium oxide or starch. Chronic cases he treated by glycerin drainage and by dilatation and cervical suction or urethral suction. He had obtained good results with electrargol in Bartholin infections; 1 to 2 c.cm. were left in the abscess cavity, but if this failed the gland could be excised. He had only found bacteriophage valuable in ophthalmia neonatorum, which usually cleared up after two applications. Diathermy he used as an adjunct, not a cure. Every case could be cured in time, and a reasonably optimistic attitude should be encouraged in the patient. If all tests were clear at the end of three months the patient might be given a provisional clean sheet. At the end of six months the tests should be repeated after a provocative dose of vaccine and the insertion of glycerin drains in the cervix and urethra. If the tests were still negative the cure might be regarded as established. In many pregnant cases it was impossible to demonstrate the gonococcus, but the patient should be treated even if the tests were negative, only mild antiseptics being used. It had been found that in the cases so treated the puerperia were less morbid than in clean cases.

Mr. D. H. MACLEOD said that at the Middlesex Hospital it was found that one-fifth of the total number of patients ceased to attend before they were cured. The average duration of treatment in non-gonococcal cases discharged as cured was 12 months and in gonococcal cases 15 months. If, on the examination of a smear, no gonococci were found and the pus cells numbered less than 50 per cent. of the total cell count, a negative result was reported. He had obtained little success with vaccines.

Dr. J. C. MOIR had used diathermy in 44 cases where the gonococcus had persisted in spite of previous local treatment. After six treatments 20 were clinically cured and gave three negative monthly smears. He believed that diathermy had no direct effect on the organisms, but acted merely by causing vascular dilatation and promoting drainage. In acute cases diathermy was useless and only aggravated the discharge. He referred to a condition in which there was a sudden appearance of an irritating discharge associated with vaginitis but no urethritis; the gonococcus was not found but the *Trichomonas vaginalis* was constantly reported and might be the causal organism.

Dr. D. WATSON advocated the use of tubular sounds when exploring the cervix or urethra; there was less chance of pushing infected material into the uterus or bladder than with a solid instrument.

Dr. MURIEL KEYES described the spectacular cure of a case of severe gonococcal arthritis by means of pelvic diathermy. The patient relapsed or was reinfected, and a second attack of arthritis was cured in the same way.

Miss D. C. LOGAN mentioned the use of alkalis in the treatment of discharge due to an acid secretion associated with the ordinary group organisms. She emphasised the value of glycerin drainage in gonorrhœa.

Colonel HARRISON, in replying, said that antenatal treatment of pregnant women was important from the point of view of the obstetrician; the descent of the infant was analogous to the passage of a catheter through a dirty urethra, and he advised a thorough local toilet of the patient at the beginning of labour.

SECTION OF RADIOLOGY.

A MEETING of this section was held on Feb. 19th, with Prof. J. M. WOODBURN MORISON, the President, in the chair.

Dr. RUSSELL REYNOLDS opened a discussion on

X Ray Treatment of Mastitis and Certain Leukæmias.

He said he used the term "mastitis" in the same sense as did Mr. Sampson Handley in his Bradshaw lecture.[1] Several types of case presented themselves for treatment. In early chronic cases increased cellularity, and more acini than usual, were to be seen, while enlarged ducts formed irregular projections into the lumen. In more advanced cases the elastic tissue of the smaller ducts disappeared and the acini were surrounded by a wavy fibrous tissue, which came to a point at the nipple. The part of the breast most affected was the outer and upper quadrant. The condition might follow a preceding acute mastitis or trauma, or irritation caused by pressure of the clothes. These cases yielded readily to small doses of X rays at a low potential, 80 kilovolts. In a general way he had found a suitable dosage to be half an erythema dose of unfiltered rays, three such doses at weekly intervals usually sufficing. In most cases there was no retraction of the nipple, but patients complained of aching, and of a shooting pain in the breast, sometimes passing up the axilla. Tenderness might be acute, and a soft axillary gland might be palpable. During the first few hours following the treatment increased fullness and discomfort occurred, but after 48 hours that had usually passed off, and in seven days the mastitis had definitely improved. After the second and third dose the discomforts diminished. Sometimes it was well to delay subsequent doses if the reaction had been pronounced. One type of mastitis was met with at the climacteric, both breasts being equally affected. These cases did not respond so readily to treatment, and if the mild treatment did not succeed, two or three doses of shorter wave length should be substituted. In some chronic cases cysts formed, these being due to dilatation of the ducts in the lobules of the breast tissue, and in the cysts papillomata might occur. The induration disappeared before the cysts, but these were often dissolved by 130-kilovolt doses; they might need deep X ray therapy. In his view mild X ray treatment of mastitis might act as a prophylactic measure against a later development of carcinoma.

As to the treatment of leukæmias, Dr. Russell Reynolds said that the nature of leukæmia was not yet clear; but X rays and radium had a profound effect on the condition, irradiation being, in fact, the most effective weapon available. His long experience had convinced him, however, that the treatment was no more than palliative; the blood

[1] THE LANCET, 1931, ii., 1169.

count must be watched, for the chief danger from the use of high-potential rays was the diminution of the red cells to the stage of anæmia. Eighteen years ago the treatment was by small doses of low potential, and some remarkably good results were secured. In one case, with whites over 700,000, the patient had to be carried into the room on a stretcher and was very dyspnœic. The treatment effected a reduction in the whites to 12,000 and the spleen returned to its normal size. To-day Dr. Russell Reynolds recommended 80-kilovolt doses filtered through 0·5 mm. of aluminium; he did not resort to higher potentials until this weaker dosage had definitely failed. In severe cases with abdominal enlargement it might be necessary to start with very small doses to avoid a dangerously acute reaction. The aim should be to obtain good results with slight penetration, the patient's own recuperative powers being kept at their best.

He had not had much experience in treating leukæmias with radium, but results seemed to be promising in a few cases where surface applications over Columbia paste had been used.

DISCUSSION.

Dr. F. HERNAMAN-JOHNSON said that occasionally an obstinate mastitis would clear up after some weeks of reaction following a somewhat high voltage application, other means having failed. In the treatment of leukæmia, his custom was to alternate X rays with ultra-violet light; this not only maintained the general health, but enabled the operator to keep his X ray dosage to the minimum.

Dr. J. H. WEBSTER said it was difficult to know which to accept of the authoritative definitions of mastitis given respectively by Mr. Sampson Handley and by Sir Lenthal Cheatle. Cases with pea-like nodules in one quadrant yielded well to X rays, though he preferred 60 kilovolts to 80. More intense mastitis with larger lumps must receive heavier doses and deeper therapy. He had obtained good results by this means in 87 per cent. of his cases. Some were later treated surgically by Mr. Sampson Handley, and some had continued pain, and finally the supervention of malignant disease. He advocated the cross-fire method where possible.

Dr. N. S. FINZI submitted that there were two distinct forms of mastitis: one a pure inflammation, the other a hyperplasia blocking the ducts. The first of these should be treated in the same way as any other inflammatory condition—i.e., with small doses of medium penetration. He used 130 kilovolts through 5 mm. of aluminium. He believed this stimulated and hastened the natural process of repair. In the other form, unless the condition was purely inflammatory, the epithelium of the ducts must be destroyed, and deep therapy was needed to ensure this. Drastic measures were required since these cases were liable to become malignant.

Dr. GILBERT SCOTT said that in the treatment of the leukæmias the chief care should be not to overdose the patient. The aim should not be to bring the white cells quite to the normal. He was convinced that each patient had his or her optimum, something between 10,000 and 12,000. By keeping down the dosage to the minimum the patient could be kept susceptible to the rays for a much longer time; in cases of relapse the rays seemed definitely less effective.

Dr. J. E. LYNHAM spoke of cases in which the breast resumed its normal size after irradiation but the pain persisted; this pain he regarded as neuralgic; it proved very stubborn. The late Dr. Robert Knox held that the effect of irradiation in blood diseases was largely on the cells in the blood stream; in susceptible cases treatment should not be pushed until the white cells were at or below normal, since the reduction would probably persist after cessation of the treatment. He thought that in course of time a scheme could be evolved by which the blood condition could be controlled during the administration of very small doses of rays. By overstepping the line in dosage it was possible to bring about a fatal result.

Dr. G. B. BATTEN said that in neuralgic congestion of breast great relief generally followed gentle rubbing towards the nipple with a mixture of equal parts of eau de Cologne and castor oil.

Recent Advances in the Treatment of Rheumatism and Asthma.

Dr. GILBERT SCOTT said that asthma and rheumatism were closely allied. It was common for a rheumatic patient to suffer from asthma and for the swelling of the joints to be a precursor of an attack of asthma. Most workers on asthma had concentrated on the thorax, but Polman, in America, had obtained improved results by irradiating the spleen. Dr. Scott believed that any benefit after treatment of the thorax was due to the accidental inclusion of the spleen in the irradiation. He was still using the method he advocated in 1926; he had devised an apparatus for the simultaneous treatment of front and back, with the object of destroying metastases from malignant foci, and a patient volunteered the information that he had cured her asthma at the same time. He covered the chest and genital organs with a layer of rubber during treatment, and used a medium wave length; full tolerance was attained when in 48 hours a feeling of slight nausea was produced. The suprarenal gland was an important factor, in his view.

Every clinic for the treatment of arthritis should, he said, have an efficient X ray department. Until knowledge concerning the best combination of wave length and filtration was more precise he did not think much progress could be expected in the treatment of rheumatic conditions. Hip-joint cases gave a quicker response to medium length rays, with aluminium filtration. By applying the rays in a certain direction a larger expanse of joint surface was reached than in any other direction. Kahlmeter claimed to have obtained good results from X rays in rheumatoid arthritis, but Dr. Scott doubted whether his patients were suffering from true rheumatoid arthritis. Such patients might get temporary relief from the rays, but they relapsed before very long. The speaker was now trying irradiation of the whole spine. The rheumatoid arthritic group showed bone changes which Dr. Scott regarded as of metabolic origin. The osteo-arthritic group of cases, if not of very long standing, were rendered symptom-free for some time. Gout he had treated only in the acute form by irradiation, which brought great relief. Cases of spondylitis deformans were among the major tragedies of medicine; patients afflicted between 20 and 30 years of age were old before they had had a chance of anything like a full life. In 90 per cent. of them infection was present, the sacro-iliac joint being usually the earliest affected. It might be wise to ask the orthopædic surgeon, in the early stage of the condition, to curette that joint. There was not much hope of cure if the condition had existed more than two years. In both active gout and acute gonorrhœa medium length X rays gave rapid relief.

The real value of X rays in rheumatism was not yet known, and careful observations of the results of various doses were needed. Sometimes obstinate cases yielded to a change of dosage. So large did cancer loom in the X ray departments of hospitals that less serious conditions took a secondary place. The idea that the maximum dose of rays would produce the maximum benefit was no more true than it was of drugs. He looked forward to the time when a sort of X ray pharmacopœia would be available so that the practitioner could readily ascertain what was the best dosage for a particular disease.

The PRESIDENT said that he had started treating asthma by X rays many years ago in Manchester. At first he treated the lungs, later the spleen, and finally he concluded that the result did not vary much with the part to which the rays were directed. The type of patient who derived benefit from X rays yielded also to ordinary protein shock methods. He agreed that the rays should not be applied to the chest in cases of asthma.

Dr. S. L. MUCKLOW said that in one group of asthma cases X rays cleared up the condition, and there was no recurrence for one to two years. In another group the patient remained free for nine months without recurrence, and subsequent attacks were reported to be milder. In a third kind of case recurrence took place three months after the temporary cure.

Dr. W. F. COKE said that the differentiation of those types of asthma which yielded good results when X rayed was urgently required. In his view the change brought about was a biochemical one.

Dr. WEBSTER remarked that other spasmodic conditions also benefited from X rays, especially pylorospasm and other gastro-intestinal states. When the whole body was treated it should not be by deep therapy.

Dr. HERNAMAN-JOHNSON said that the early medical treatment of Graves's disease should certainly include X rays, before the case was handed over to the surgeon. Small doses of X rays two or three times a week would often result in increase of weight and lowering of the pulse-rate.

MEDICAL SOCIETY OF INDIVIDUAL PSYCHOLOGY.

AT a meeting of the society, held on Feb. 11th, at 11, Chandos-street, with Dr. F. G. CROOKSHANK in the chair, Dr. J. C. YOUNG read a paper entitled

Individual Psychology and its Philosophical Implications.

Dr. Young indicated in outline the practical importance of a clear understanding of the philosophical implications of individual psychology. He then dealt in more detail with the theses as enunciated in a lecture, entitled "The Meaning of Life," in which Dr. Adler develops the view that the meaning of life is to be found in contribution and coöperation. Dr. Young criticised this conception on the grounds that, valuable as it is, it involves certain inherent contradictions which cannot be resolved in terms of individual psychology as at present formulated. The wide conception of "contribution"—Adler exemplifies this concept by work, children, ideas, and so on—requires qualification. Work may be good or bad, children healthy or sickly, ideas true or false—in other words a contribution may be positive or negative. The feature common to all positive contributions is their survival value. But even this position requires further consideration. Just as that which is useful at one period of life may later be outgrown, so the genuinely positive contribution may in time become negative. In addition the positive contribution in one order of life may be based upon a negative contribution in another. Some of the most painful cases of maladaptation occur in those whose positive contributions are infinitely greater than are some of those whose social adaptation is apparently complete. The poetical works of Keats are enduring, yet the man himself was not socially well adapted.

It was not sufficient therefore to say "adapt yourself to society"; such a formulation of social coöperation is inadequate and a danger. One must be certain of the intrinsic value of society before one is justified in urging the sacrifice which such adaptation involves. The point at issue was whether the society with which the individual should coöperate should be that of the past or of the future, that of the present being a flux between the two. The medical psychologist must have a clear conception of the order of society required to resolve the contradictions of patients of high potential value. Such a society must be living, dynamic, biological, not static and mechanical, otherwise there was danger that one might be pressing for coöperation with an obsolete society, for adaptation which is bad. There was a creative-destructive urge in life which constantly presses not only towards the creation of something new, but also towards the destruction of what is obsolete, so that the new may emerge. Society as a living organism must be prepared for creative convulsions similar to those which occur in the animal organism, for instance the minor convulsion of the moulting bird, or the major convulsions of man at puberty. The increase in number and complexity of psychological problems suggested that a great social convulsion, initiated by the Great War, is now in progress. It was not merely the individual who has reached his capacity to coöperate; the onus must at times be shifted on to society. The doctor now dealt with psychological difficulties formerly taken over by the priest. He might not be able to offer to the psychologically recalcitrant the consolations offered by religion, but he could point out that one way of coöperating with a society of the future was by helping to bring about one which would be more completely coöperative. Man must no longer be regarded dualistically as consisting of the natural and the supernatural, but as a dynamic and organic whole. Not the "organic" of medical tradition, but one which was totally inclusive of the human being. Existing society must not be accepted as finality, a norm. Adler had said "the criminal will not coöperate." But to the extent that it does not bow to the established order of things the revolutionary spirit might be regarded in the same way. It was important therefore to distinguish between positive maladaptation and negative maladaptation, between the forward-looking "revolutionary" and the backward-looking "criminal." Inability to coöperate with existing society might denote capacity to coöperate with a future society which is denied expression by society as at present constituted.

DISCUSSION.

Dr. H. CRICHTON-MILLER said that there were several fallacies underlying Dr. Young's thesis. It was a good motto to speak to a man's meaning

rather than to his words; Dr. Adler would agree with much that had been said. Dr. Young's assumption that people think that society is infallible was not a gospel to-day. When an individual antagonised society, and refused to coöperate, he was only expressing a decision to make his own terms or break with society. The underdog was not always a hero. Dr. Crichton-Miller did not agree that Dr. Adler stood for a static society, he did not deserve the metaphysical pounding he had just received.

Dr. C. I. SCHIFF remarked that the original basis of individual psychology was the question of inferiority not coöperation. Coöperation arose as a means of curing the inferiority. Adlerian psychology owed its birth to the influence of Nietzsche. A neurotic was a person who could not fit into any society.

Dr. T. LAWSON doubted whether adaptation and coöperation were the same thing; Dr. Adler spoke more of adaptation. If parents understood their children, the children would be able to adapt with more courage.

Dr. HILDA WEBER pointed out that the society to which Dr. Young had referred was rather vague and indefinite. Coöperation was to a greater extent concerned with something more tangible—i.e., real, living people; Dr. Adler's injunction, "to do something for somebody else" was appropriate here. Even those who retired from society, for instance the monks, coöperated very definitely with a well-defined society within the monastery walls. She referred to the bonds which united the members of the different schools of psychology.

Dr. F. BODMAN said that the question of adaptation in connexion with the individual was largely one concerned with the milieu in which he lived.

Dr. J. D. HESSEY thought that the previous speakers had taken too parochial a view of society. Adaptation to a section of people was one thing, and adaptation or coöperation with society as a whole another. He considered that the present chaotic condition of society could only be changed by integration of the individual according to the principles of individual psychology.

Dr. G. GORDON remarked that it is not always wise to deal with patients philosophically. Society had its rights.

Dr. M. MARCUS said that every doctor should have his opinion as to what constitutes a good society, and what are the elements with which the individual should coöperate.

Dr. BEVAN BROWN held that the neurotic was one who did not *want* to coöperate. He should be freed from his conflict so that he could coöperate.

Dr. A. SANDERSON said that Dr. Young had crystallised the difficulties which he himself had found, Adler seemed to plead for the world as it is.

Dr. BURNETT RAE considered that the psychologist who is out to help must have an individual point of view; he must have something to give to the patient.

Dr. F. G. CROOKSHANK contended that Dr. Young spoke more against words than content. It was a valuable destructive analysis of a false interpretation of coöperation. The neurotic was one who has no real social feeling. His purpose was aggrandisement rather than coöperation. It was not necessary to assume that change is always good. Adler pointed out that criminals do coöperate, hence the saying, "honour among thieves"; the criminal was a product of society. Adler did not suggest that the small group should necessarily agree with the larger. In urging coöperation he meant willingness to conform so far as was consistent with the good of the larger whole. Keats contributed to art, but he did not coöperate with others in life. Adler would probably say that the question to be considered is whether it is better to have a fairly uniform and happy society with fewer works of art.

REPLY.

Dr. J. YOUNG said that he had not been tilting against Adler's spirit. He had been speaking of the philosophic background. It was necessary that this should be made conscious and be understood, otherwise every kind of malpractice might be allowed in the name of individual psychology. He considered that organ inferiority, emphasised by medical men, was inseparable from adaptation. He agreed that all the onus should not be put on to society; nevertheless the responsibility of parents was often insufficiently recognised. By society he meant the inertia of life, the drift of things.

LIVERPOOL MEDICAL INSTITUTION.

A MEETING of this institution was held on Feb. 4th, with Prof. R. E. KELLY, the President, in the chair.

Antenatal Radiology.

Dr. R. E. ROBERTS read a paper based on the results of radiography in 550 cases, all of which presented some element of clinical doubt or difficulty. The method was useful, he showed, in estimating the exact degree of pelvic deformity and the position and size of the presenting part in relation to the normal pelvis. It was also of value in estimating the maturity of the fœtus at any time after the end of the fourth month—especially in cases where the clinical evidence was doubtful. Further, it gave important information not only about the presentation but also about the position of the fœtal limbs in relation to the trunk and head, and in cases of multiple pregnancy it demonstrated the relative positions of the fœtuses. Cases of extra-uterine pregnancy were difficult to diagnose unless some means could be adopted of more clearly visualising the position and size of the uterus. In deciding the cause of hydramnios, radiography was found to be invaluable; fœtal abnormalities were, as a rule, diagnosed with precision where their nature or even presence was uncertain from clinical examination.

Prof. W. BLAIR BELL said that he had coöperated with Dr. Roberts from the commencement of his work on antenatal radiological diagnosis and great benefits had accrued to his patients thereby. Yet he had found great difficulty in persuading some of his colleagues in other places that it was possible accurately to measure the pelvis, estimate the age of the fœtus, and so on. There were still those who were regarded as authorities on antenatal work, but did not yet recognise the fact that radiography was, in many cases, an essential part of antenatal investigation; the most they would admit was that this was a matter for further research! Estimations of the age of the fœtus and of the hardness of the skull were of great value, for postmaturity was not uncommon, and often led to difficult labour from disproportion if the head would not mould in the normal manner. On the evidence of a radiogram, induction could be practised in good time. Actual measurement of the head, which was difficult, was in reality not of any special value, for a slight degree of hydrocephalus was

diagnosed by the radiographic appearance rather than by the size of the head.

Prof. H. LEITH MURRAY, while deprecating any substitution of radiography for careful palpation, said he had found it of extreme use in difficult cases. In many of these the patient was so fat that palpation was far from easy. No obstetrician should ever allow a case to enter labour without a full diagnosis of the presentation and the position having been made. Without the assistance of radiography this could not be guaranteed in all cases. Lack of flexion, too, might suggest a disproportion which was not, in fact, present. Here, also, modern radiology could be of great service in cases where palpation was inconclusive. With regard to the diagnosis of degrees of immaturity, while he had found radiography reasonably useful in cases with an undetermined amenorrhœa and a fat abdomen, he would require a longer series of cases than had been presented by Dr. Roberts before he agreed that radiography was superior to a study of the abdomen and the duration of amenorrhœa.

Dr. R. M. B. MACKENNA read a note on Three Unusual Lesions of the Scalp.

AT a pathological meeting held on Feb. 11th, the Vice-President, Mr. FRANK JEANS, being in the chair, Prof. C. E. WALKER read a paper on

Some Aspects of Cancer.

Prof. Walker said that a case of cancer might go through periods of improvement and regression. Very rarely there might be a spontaneous cure, and this seemed to be brought about by an overgrowth of fibrous tissue which destroyed the cancer cells. Connective tissue had been neglected by cytologists; the more delicate cell phenomena were not visible in ordinary histological and pathological specimens. Yet the connective tissue cells must multiply and differentiate freely and frequently. Any destruction of a tissue beyond a very small amount was replaced, not by the multiplication of the cells of the injured tissue, but by connective tissue forming a scar. There was a tendency for leucocytes to crowd round the advancing edges of malignant growths. Connective tissue and blood were closely related in their development. At some stages it was impossible to say whether a particular cell was going to become connective tissue, or the ancestor of a leucocyte. This close relationship continued throughout life. There was an insensible gradation between the wandering connective tissue cells and leucocytes. It was possible that the temporary improvement in some cancer cases was due to the leucocyte activity in the production of connective tissue having caught up and temporarily counterbalanced the multiplication of the cancer cells. It was probable that the reaction which followed many of the methods of treatment described was brought about in the same way. The result might be purely mechanical. Experiments seemed to show that cancer cells were more resistant to unfavourable factors in the environment than were the corresponding normal tissue cells. Therefore it might well be more profitable to seek some methods of stimulating the wandering cells that accumulate round a growth than to attempt to find something that would kill the cancer cells without killing the patient.

In the speaker's opinion, many of the methods of treatment described did have this affect to a partial extent, and it would probably be better to aim directly and deliberately at obtaining this result, and assist the wandering cells and their offspring in what appeared to be their function.

NEW INVENTIONS

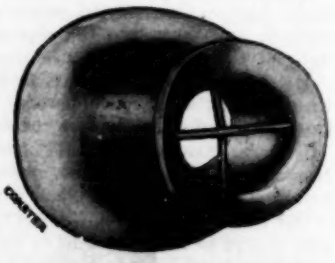
AN ANÆSTHETIC MASK FOR OPHTHALMIC USE.

THE mask here illustrated consists of a hemispherical wire dome on a horseshoe-shaped gutter. There is no bridge of wire at the nasal end. In practice, any mask which straddles the nose is in the surgeon's way, particularly during operations in the lower lid and lacrymal sac regions. The mask invariably gets pushed off the nose, allowing too great an air leak. This mask rests just at the end of the nose. The gap between the ends of the horseshoe gutter is bridged by the lint, which is intended to be worked up with the finger into a hood. This hood covers closely the lowest half-inch or so of the nose, and can be accommodated to any average-sized nose by merely working up with the finger, or pulling on the lint at the sides. The mouth and nostrils are thus closely covered, while the mask is as far away from the operator as possible. Other useful features are loops in the clamping wire, at the sides, to allow of the passage under the lint of a tube from the oxygen cylinder or Junker's bottle. The idea is that of Shipway's mask, but the soldered-in metal tubes were not thought necessary, as a medium-sized rubber tube is clamped quite tightly enough to prevent accidental falling away, and a ring handle, modified from Dunderdale's, is fixed to the chin end of the gutter. The makers are Messrs Down Brothers, Ltd., London, S.E.

R. BURNS, M.B.

A NEW ORAL PROP.

AT the present time many operations not demanding complete relaxation are performed under pure nitrous oxide-oxygen anæsthesia. In most cases the use of an artificial airway is neither practicable nor necessary. In certain circumstances, however, such as nasal obstruction, the employment of an oral prop facilitates a smooth anæsthesia. Most of the available props have been designed for use in dental surgery, and are consequently unsuitable. The one illustrated is curved to conform to the shape of the front of the jaws, and is practically self-retaining. The posterior aperture is provided with cross wires to prevent occlusion by the tongue, while the anterior aperture is sufficiently wide to keep back the lips without getting in the way of a face-piece. The biting surfaces are covered with sheet lead to protect the dental enamel, and the whole is chromium plated.



It has been made to my design by Messrs. Coxeter.

London, N.W. C. LA[illegible] HEWER, M.B., B.S. Lond.

REVIEWS AND NOTICES OF BOOKS

A Text-book of X Ray Therapeutics.

Fourth edition. By ROBERT KNOX, M.D., M.I.E.E., D.M.R.E. Completed and edited by WALTER M. LEVITT, M.B. Irel., M.R.C.P. Lond., D.M.R.E., Medical Officer in charge of the Radiotherapeutic Research Department and Assistant Medical Officer to the X Ray Department, St. Bartholomew's Hospital, London. London: A. and C. Black, Ltd. 1932. Pp. 250. 21*s*.

TWELVE years ago the late Dr. Knox published a volume on radiotherapeutics that covered the application of both X rays and radium to medicine. When he died in 1928 he had for some time been at work on a similar book which would deal only with X ray therapy. Dr. Levitt has taken up the tale where Dr. Knox left it. He had not had the opportunity of working with Dr. Knox and it was a bold step to take over his material, and, after four years during which X ray therapy has made feverish progress, to attempt to weave it into a connected whole. Dr. Levitt has justified his courage for he has produced a valuable work, and has, moreover, helped to perpetuate the memory of a pioneer who in the very earliest days strove to help radiotherapy out of the stage of empiricism and place it on a scientific plane. It is interesting to compare this volume with its predecessor, written at a time when dosage was entirely empiric. Extraordinary advances have taken place in the power of the apparatus available, in its reliability, and more especially in the measurement of the intensity of radiations at any required depth. A welcome appendix is a paper by Dr. Knox read just before his death at the Stockholm Congress, in which he discusses the biological factor as a guide to dosage and its influence upon developments of technique.

Dr. Levitt has succeeded in fusing his own material with that of Dr. Knox, and has contrived to make the book an almost continuous story. Of the many excellent chapters, we would particularly commend the balanced and judicious accounts of the effects of X rays on tissue. The chapters on physics, X ray measurement, and filters are admirable; it is perhaps unfortunate that the account of principles of X ray therapeutic technique does not follow these chapters directly, being separated from them by two chapters dealing with apparatus. The technique of the treatment of malignant disease in different regions is described in a simple, straightforward way, and where a variation of method is advised a satisfactory reason for it is usually supplied. It is interesting to compare these chapters with those in Dr. Knox's original book. The conclusion reached from such a comparison is that X ray therapy of deep-seated lesions has made great strides in the last twelve years, while the treatment of superficial lesions, if judged by this book alone, would appear to be at a standstill, for the chapters in the two books are, for the most part, identical.

This treatise will be a reliable guide to the experienced medical radiologist to whom alone X ray therapy should be entrusted. It will also serve as an indication to physicians and surgeons the present scope of X ray therapeutics. There seems to be little doubt that in the future this scope is likely to be enlarged, especially as a supplement to treatment with radium.

Annals of Roentgenology.

A Series of Monographic Atlases. Edited by JAMES T. CASE, M.D., Professor of Roentgenology, Northwestern University Medical College, Chicago. Vol. XIII. *Gynecological Roentgenology.* By JULIUS JARCHO, M.D., F.A.C.S., Sydenham Hospital, New York. New York: Paul B. Hoeber, Inc. 1931. Pp. 571. $20.00.

THIS volume, devoted to gynæcological radiology, is almost entirely concerned with X ray diagnosis. The one chapter dealing with radiotherapy gives such a very brief survey of the subject that it is of little value to any but the most general reader.

In the first few chapters Dr. Jarcho gives a clear and detailed description of the technique for producing a pneumo-peritoneum designed to aid radiography of the pelvis. He points out the various uses that can be made of X rays in gynæcology, and goes on to enumerate the complications which may occur, and have occurred, during the production of pneumoperitoneum. Next he discusses the value of insufflation of the uterus and Fallopian tubes as a means of diagnosing the patency of the latter, and again draws attention to the possible dangers if too great a pressure is used. As an alternative, the method of injecting iodised oil through the uterus and tubes is discussed at length, and very precise details are given of the technique. The author himself uses and recommends a combination of induced pneumoperitoneum and utero-salpingography, which he believes gives a clearer picture of any abnormalities that may be present than either method alone. He quotes some cases in which dysmenorrhœa seemed to be cured by insufflation of the tubes; it is probable that these cases were really of the congestive type.

The diagnostic part of the volume should prove of great value as a book of reference and as a practical guide in the various methods of utero-salpingography. The section on radiation therapy gives some useful references to the work of various authorities but is not of the same practical value as the rest of the book. Every gynæcologist will agree with the author that radiotherapeutic abortion by means of X rays is not justifiable; but surely in order to emphasise this it is not necessary in a book on radiology to give a detailed description of how the author produces abortion by mechanical methods. Finally, there is appended a very full bibliography and carefully compiled subject index.

Menschliche Auslese und Rassenhygiene.

Third edition. By Dr. FRITZ LENZ, Professor der Rassenhygiene an der Universität, München. Munich: J. F. Lehmanns. 1931. Pp. 594. Mk.17.

THERE have been considerable changes in this work since the first edition ten years ago; it now appears as a text-book of eugenics in the widest sense, and includes also a good deal of politics and sociology.

The first part deals with selection in man, especially biological influences, and the part played by acute infectious diseases, tuberculosis, venereal disease, infantile maladies, alcohol, and war. A study of the effect of selection upon the efficiency in modern life of the various systems of the human body is followed by rather controversial sections on social and racial factors in selection, with a thorough examination of

the data bearing on growth and quality of population. From a brief account of migration, both within the nation and abroad, Dr. Lenz passes on to consider the future of the great racial groups; his speculations are coloured by his predominant concern about the fate of the Nordic peoples.

The second part of the book is devoted to practical eugenics. Legislative control of marriage and measures for preventing or advising against undesirable procreation are discussed as they concern society in general, and as they determine the private life of the individual and the family. Here, too, the author's nationalist preoccupations loom large. The field of racial hygiene is covered in this large book with great, if biased thoroughness, and the personal attitude of the author is never in doubt; so much so that in many places the book reads more like a manifesto than a treatise. Learned, sincere, but often partisan and intemperate in its zeal, it cannot be regarded as a satisfactory exposition of eugenic doctrine, as understood in this country at any rate, though it is excellent in its presentation of the great range of eugenic problems and their paramount importance for occidental nations.

A Manual of General Practice.

Second edition. By W. STANLEY SYKES, M.A., M.B. Camb., D.P.H. London: H. K. Lewis and Co., Ltd. 1931. Pp. 213. 7*s.* 6*d.*

THIS useful book, of which a second edition has now appeared, fulfils a definite purpose in describing the sides of general practice which are not often considered by newly qualified men. Many valuable hints and facts are given on such varied subjects as the start in practice, conduct of practice, treatment, certificates, dispensing and drugs, book-keeping, lists of necessary instruments, and the working of the national health insurance. The chapter on the diseases of general practice is perhaps the least satisfactory. It is a book that should find its way into the library of every medical school, and will doubtless be purchased by many who read it there to their great advantage. With the help of such a book as this the start in practice becomes considerably simplified.

The Neural Energy Constant.

A Study of the Bases of Consciousness. By JOHN BOSTOCK, M.B., D.P.M., Honorary Neurologist, Brisbane General Hospital. London: George Allen and Unwin, Ltd. 1931. Pp. 178. 6*s.*

THE object of this essay is to bring forward a neural theory of human behaviour; it belongs entirely to behaviourism and does not bow the knee to any psychological theory, although the presiding deity is, in the author's regard, the faculty of awareness which is a suspiciously psychological concept. Primitive consciousness is pure awareness and its guiding motive is the urge to adjustment. Awareness and emotion are localised in the optic thalamus. This is the mechanism for coarse adjustment to environment, whereas fine adjustment is implemented by the cerebral cortex. There is a constant of neural energy and in any act of adjustment a minimum number of neurones is operative. The theory of neural energy, in Dr. Bostock's estimation, explains inhibition and sleep on the basis of an activity akin to McDougall's theory of drainage. While energy remains constant, it is repeatedly passing from one minimal neural set to another in order that accurate adjustment to environment should be possible. Sleep is a dissociation of the centres of awareness, emotion, and fine adjustment, and the author feels that dreams can be classified on the basis of such dissociation, and that they do not call for a theory of the unconscious, which to him means a brain within a brain. The thesis is distinctly a diagrammatic one, and on the basis of neural function it gives a reasonable picture of behaviour in terms of nerve structure. In our view Dr. Bostock places too much reliance upon the fiction of localisation, which the work of C. S. Lashley in recent years has somewhat invalidated. The frequent inclusion of psychological terms in what is a purely neurological explanation shows that we are still far from an adequate mechanical explanation of behaviour in terms of the nervous system. When behaviourists suffer the inclusion of psychological terms, it would appear that after all psychology is not without its uses, and perhaps that the study of the organism as a whole will profit if it pursues its course in psychological terms, leaving the neurologists to translate behaviour into the language of neurones. Dr. Bostock evidently does not feel it necessary to examine the concept of neural energy, which other neurologists find unsatisfactory.

History of Scottish Medicine.

Second edition. By JOHN D. COMRIE, B.Sc., M.D. London: Baillière, Tindall and Cox. 1932. 2 vols. Pp. 852. With 2 plates and 404 figs. in text. £2 10*s.*

THESE two handsome volumes, compiled by the University lecturer on medical history at Edinburgh, owe their inspiration to Sir Henry Wellcome, and are issued by the publishers for the Wellcome Historical Medical Museum. Dr. Comrie is well known as a master of medical history, and has held his chair at Edinburgh for more than 20 years with distinction. He covers fairly the whole range of his subject as illustrated by Scottish events and has produced a work of interest to archæologists, biographers, and doctors alike. The first chapters deal with medical folk-lore—Gaelic manuscripts, hereditary families of doctors, charms, spells, and amulets; thence we pass to the consideration of early public health measures against leprosy, syphilis, and plague; the "Seal of Cause," the charter granted by King James IV. in 1505 to the Guild of Barbers and Surgeons at Edinburgh is reproduced in facsimile, and the origins of the Royal Corporations are set out. The second volume starts with the story of military medical practice in the eighteenth century in Scotland, and gives the interesting biographies of Pringle and Prince Charlie's famous doctor Sir Stuart Threipland. The personalities which have distinguished the Edinburgh Medical School then come in for full reference, the period of the great teachers, the Monros, the Bells, Syme, Liston, and Simpson being dealt with in detail. Further chapters are devoted to the rise of the medical schools of St. Andrew's, Aberdeen, and Glasgow, and, both topically and pictorially, every aid is given throughout by free illustration.

These volumes are an expansion of a book on the same subject written five years ago on the occasion of the inauguration of the section of medical history at the meeting in Edinburgh of the British Medical Association, and certain of the material has also appeared in the *Edinburgh Medical Journal* and the *British Medical Journal*. The work will be esteemed in all medical libraries as a beautifully produced and convenient source of reference.

THE LANCET.

LONDON: SATURDAY, FEBRUARY 27, 1932.

RADIUM AND THE PUBLIC.

THE fragmentation of the four-gramme bomb of radium lent to the Westminster Hospital has been accompanied in the daily press by an explosion whose loudness is disproportionate but understandable. On the KING'S recovery from illness much money was spent on the purchase of radium and great hopes were founded on the immediate saving of lives to be effected by the provision and the ability to use a prodigious supply of a new and potent remedy. Any setback in the delivery of the goods was bound to cause acute disappointment, and the letter over six medical names in the *Times* of Feb. 9th, containing a protest against the decision of the National Radium Commission to withdraw the bomb, released this widespread feeling of disappointment and led to the hasty expression of doubt whether those to whom the radium was entrusted were acting wisely. No one questioned the motives of the Commission, but there has been sharp criticism of its judgment. The letter in the *Times* stated categorically that certain types of cancer are better treated by the bomb than by any other method of using radium, and equally categorically that surgical operations are being done in this country which are no longer justifiable in view of the possibilities held out by radiological treatment.

We need not set out here the arduous work of the Radium Commission in developing radium centres in various parts of the country, and in combining the Mount Vernon Hospital and the Radium Institute into a post-graduate radium school; but it may be well briefly to recapitulate what led to the decision to entrust so large a mass of radium—one-sixth of the whole stock—to a particular institution for a particular purpose. The Radium Subcommittee of the Committee of Civil Research, whose report preceded the appointment of Radium Trustees and of the Radium Commission, remarked on the inadequacy of our present knowledge to decide whether radium is best applied at close quarters to malignant growths within the body or whether the future lies rather with massive doses of penetrating rays applied at a distance. Some of the most far-seeing of radium workers at that time regarded the logical development of contemporary knowledge to be the use of large quantities of radium at a distance from the body, enabling a wide field to be covered and a fairly homogeneous intensity of irradiation to be given at a moderate depth below the surface. It was to give effect to this view that one of the first acts of the Radium Commission was the purchase of a four-gramme bomb of radium in order to try out a method of treatment which had been used for some time previous in Paris and Stockholm. The results obtained abroad were, in the Commission's judgment, "undetermined" and the experience gained not sufficiently encouraging to justify the acquisition at that time of more than a single such bomb of radium. In their first annual report, and indeed in every report which the Commission has issued, it has never failed to emphasize the fact that at present radium is a very dangerous weapon and one which, unless used with the greatest skill, care, and precaution, may easily be productive of more harm than good. A year later it was represented to the Commission by medical representatives of the institution that the results so far obtained with the bomb were of such a nature that they did not wish to continue work with it unless divided up into smaller units. Acting on this report the Commission decided that the continued use of the bomb in its present form was uneconomic. No doubt the test had been a very severe one for any form of treatment inasmuch as, in two of the regions chosen surface therapy with radium had already proved inefficacious. It would be idle for anyone to criticise the wisdom of the Commission's decision without seeing the actual protocols of cases treated, but it may be recalled that at the International Congress of Radiology, held last July, REGAUD and MONOD admitted that 17 out of the 19 cases of carcinoma of the stomach treated with the bomb at the Radium Institute in Paris during the years 1925–29 were already dead; and only one of seven cases of carcinoma of the bladder treated from 1927–29 was still alive in 1931. No doubt in Paris, as in the other capitals where radium has been available in this form, the treatment has been something in the nature of a clinical experiment of which the results are not yet known and in regard to which, as our own Commission has said, at least five years of further experience and coördinated research will be required before any final verdict can be expected. The disassembling of the bomb is in no sense a final and irrevocable act. It is simply proposed to redistribute its contents into four units each of one gramme. None of the tubes in which the radium is contained is to be broken up, and, even were this the case, its redistribution into smaller or larger units, though a highly technical matter, is one which would present no particular difficulty. The act does not mean (to use the words of an official communication to the press) that the Commission has lost faith or interest in bomb therapy, but that further experience is desirable before the treatment of patients with the larger type of bomb is continued under its auspices.

Mr. STANFORD CADE and his five co-signatories to the letter in the *Times* urged the immediate appointment by Parliament of a committee of inquiry to consider how best to advance radiotherapy, especially in its research aspects. They state, as we have noted, that certain types of cancer are better treated by the bomb than by any other method. There is evidently on this point a definite cleavage of opinion within the medical profession in this country and one that is hardly

likely to be reconciled by intervention from without. Lord DAWSON and Lord MOYNIHAN are unquestionably right in saying that the duty of instituting such an inquiry belongs to the medical profession itself. Doubts which have been raised as to the disposal of funds by the Radium Commission, and the competence of the Commission itself, could be set at rest by a public inquiry, if they had not already been set at rest by simpler means. But the ascertaining of clinical and experimental facts, the pooling of experience, and the weighing of conflicting views are the only bases of reconciliation and future action. These are the task of medicine.

RHEUMATIC INFECTION IN CHILDHOOD.

IN Cardiff C. J. MCSWEENEY [1] finds that the incidence of rheumatic carditis is 5·8 per 1000 of the elementary school population, while W. G. SAVAGE [2] has estimated the incidence in Bristol at 7·7. The average figure for the counties round Bristol was in the neighbourhood of 2 per 1000, and this strongly suggests that there is some factor in urban life which plays an important part in rheumatic infection. MCSWEENEY notes that over 66 per cent. of the cases occur in the cold wet months of winter and spring, and that in over 73 per cent. the disease comes on between the ages of 5 and 10. There was no appreciable association of rheumatism with damp houses, dental caries, state of the tonsils, or frequency of sore-throats. Cardiff is fortunate in having special hospital accommodation for these children, and it appears that at least one bed for every 1000 of the school population is needed for their efficient treatment. The value of this hospital treatment is shown by the fact that, in the period reviewed, of the total 222 children admitted only 29 had normal hearts, but 135 were discharged with no demonstrable cardiac lesion. Incidentally it was observed that children treated in open-air shelters improved more rapidly and relapsed less often after discharge than those who slept indoors. The Cardiff experience also supported the opinion that tonsillectomy does little to prevent the onset or decrease the relapses of rheumatism in childhood.

Six hundred of the Cardiff children were grouped according to their social status in an attempt to assess the significance of gross environmental factors in the ætiology of the disease. It was shown once more that rheumatic children are seldom met with in well-to-do homes, and also that the incidence is greatest not among destitute recipients of public assistance but among those who, without actually suffering privation, have a struggle to make ends meet. That rheumatic infection may occur amongst public school-children is shown by W. H. BRADLEY, who has lately recorded [3] two epidemics in a public school. These epidemics were closely associated, and ran parallel with epidemics of sore-throat due to a hæmolytic streptococcus. The rheumatism followed the naso-pharyngitis, when this was recognisable, after an interval, in the way described by B. E. SCHLESINGER and W. SHELDON, which is held to suggest an allergic state. In the two epidemics different strains of streptococcus were isolated, and the sore-throats which they produced were distinct in their clinical appearances. BRADLEY therefore agrees with SHELDON that while rheumatism itself is not infective the preceding nasopharyngitis, which sensitises the patient, probably spreads as a droplet infection.

A difficulty that confronts all students of rheumatic carditis is how to know when the patient may safely be released from active restraint and allowed to return, partially at any rate, to a normal life. This is largely dependent on the question, not yet definitely answered, whether the morbid process is a drawn-out smouldering infection like tuberculosis, or consists of a series of relapses with cessation of activity in the interval. White blood-cell counts have in general proved of little value in determining the activity or otherwise of the disease, but in our issue of Jan. 9th W. W. PAYNE and also F. BACH and N. GRAY HILL showed that the sedimentation rate of the blood may be useful in this respect. A raised pulse-rate has long been regarded as an indication of a progressive cardiac lesion, but since the pulse-rate is easily affected by purely psychic factors its value as an index of activity is largely vitiated. SCHLESINGER [4] has tried to get over this difficulty by studying the pulse-rate during sleep. He finds that the normal sleeping pulse-rate is on the average 10 lower than the "alert" rate. From his study he believes that if the sleeping pulse-rate is raised and approximates to the alert rate so that the normal difference is abolished, we have an indication of active carditis. Even if this difference is absent, a sleeping pulse-rate persistently above normal is in his opinion strongly suggestive of activity.

[1] Arch. Dis. Child., December, 1931, p. 367.
[2] Interim Report of Inquiry in Gloucestershire, Somerset, and Wiltshire. Brit. Med. Jour., 1931, ii. (Suppl., p. 37).
[3] Quart. Jour. Med., January, 1932, p. 79.
[4] Ibid., p. 67.

THE LONDON CLINIC AND NURSING HOME.

IT has often been pointed out that the most modern and elaborate equipment for the treatment of disease is available in this country only for the poor and the rich. But though the rich can obtain the advantages, the different branches of treatment are never found under one roof. While an expensive nursing home may offer a comfortable room, a good cuisine, first-class nursing, and an up-to-date theatre, the pathological investigations will have to be made somewhere else and usually the X ray examination somewhere else again, while consultants who have equipped themselves with special diagnostic apparatus may have to be visited in yet other neighbourhoods. Even the very rich find the procedure dear. It is the object of the promoters of the London Clinic and Nursing Home, which was opened by the Duchess of YORK last week, to provide full facility for the diagnosis and treatment of disease under one roof and at a price which the middle class can afford.

The great building at the north end of Harley-street and Devonshire-place claims to be, in design

and scientific equipment, the perfect nursing home, with all the resources of a modern hospital. It is run by a board of directors for profit, but the wishes of the medical staff will, it is understood, be paramount, in respect of the interests of their charges. The chairman is the Duke of ATHOLL and the house governor is Sir ERNEST MORRIS, well known as the director of the London Hospital for many years. Thirty-six consultants form what is known as the "medical group." Each of them has a consulting-room and an office in the building; these they rent from the directors in the ordinary way, and they have first call on the beds. The Duke of ATHOLL, however, pointed out in his speech at the opening that the clinic is not a "tied house" but that any member of the medical profession can secure a bed for a patient if he wishes. When the clinic is full there will be two resident medical officers, but any general practitioner whose patient enters the clinic can continue to attend, together with the consultant of his choice, as in an ordinary nursing home, except that the use of the operating theatres is limited to surgeons on the staff of recognised teaching hospitals. Every nurse on the staff is State-registered and the porters and attendants are all ex-Service men personally selected by the chairman; and the chef comes, we learn, from a well-known restaurant. The pathological and radiological departments are run by a separate company formed by the medical group. Beyond a moderate interest on the money subscribed, all profits will be devoted to improvement of equipment and the reduction of fees to patients of the clinic who cannot afford the ordinary rate. Only members of the group will have the privilege of obtaining reduced rates for those under their care who cannot afford the customary rates, which will always be charged to any outside practitioners who make use of the laboratories.

The building occupies a site of two and a half acres and has cost over £430,000. The rooms are distributed over ten floors and there is nearly a mile of rubber-paved corridors, all of which are lit by a system of glass-fronted alcoves; hung across every corridor there is a glass sign-board bearing the name of every member of the staff, so that when he is wanted his name can be illuminated in all parts of the building. Nearly all the patients' rooms front on to the courtyard, so that they are as far as possible from street noise. Where necessary, double windows are provided, and the problem of vibration has been overcome by padding the steel foundations with heavy felt. Every room has its own hot and cold water-supply, telephone, bathroom, and lavatory, and all the furniture is of walnut or African mahogany covered with cellulose, so that no polishing is needed. Each bed has a three-button switch beside it, so that the patient can press a red light to indicate that he wishes to be left quiet, a blue light when he wants to call a nurse, and a green light when he wants to call a maid. These lights shine outside in the corridor and also show a small tell-tale light in the room to assure the patient that his apparatus is working. There are no bells or buzzers. One floor is to be devoted to children and another to dietetic cases, while the seventh floor is for maternity and includes two special labour rooms and a roof garden for the babies. On the eighth floor are the seven operating theatres, including a dental theatre and an ear, nose, and throat theatre. Each is equipped with sterilising, lighting, and ventilating apparatus, not of any predominant British production.

The cheapest room is priced at eight guineas a week, and the "luxury suites," at thirty-five guineas, include a second room for a relative or maid and a nicely furnished sitting-room. "This," said Lord MOYNIHAN at the opening, "is a new venture, a venture fraught with the deepest significance to the profession and to the public . . . a clinic to satisfy the most fastidious demands." The London Clinic should offer unusual opportunities for team-work among specialists, and for the collection of statistics.

A SCHOOL HEALTH SERVICE.

IT was the tragedy of Dr. Parlane Kinloch's career that he just did not live to see the larger fruits of his administrative genius. His own department was strengthened and remodelled but the time was too short for the close appreciation of the difficulties of medical men and other health workers in the field, which was his special gift, to take full effect. In a letter to Sir Arthur Newsholme, written a day or two before his death, he admitted that his review of the health services with reference to efficiency and results was compelling him to the conclusion of the need for definite reorientation. "At this stage," he wrote, "I would illustrate my point by reference to any one of our services, say, the school health service. At the initiation of the service, I think we all generally took the view that, with a system of periodic examination of school-children, we should be able to detect divergencies from health and minor and major defects, the correction of which would prevent the development of more serious disease. The defects thrown up by the school health service are, in order of frequency, carious teeth, diseased tonsils and adenoids, enlarged glands, rickets, discharging ears, &c., and it is obvious that these conditions are either the late, and in some cases, the irreparable effects of malnutrition or the end-products of earlier infectious diseases, including catarrhal and respiratory infections. In other words, routine inspection is revealing conditions that cannot properly be remedied as detected, and it would appear that we must go much further back and secure the adequate nutrition of the expectant mother and of the infant and growing child in its earliest years; we must improve the diet to increase resistance to the infections whose end-products are revealed by school health inspection; and we must provide a medical service that will deal with infections in their earliest stages and so by early and intensive treatment prevent complications and sequelæ. The school medical service," Dr. Kinloch went on to say, "yields no evidence of the incidence of morbidity in child life. Whenever a child becomes ill, it disappears from the school health service and comes under the care of the family doctor." And he concluded with the pregnant remark: "It seems to me that we shall have to swing the whole service into the hands of the general practitioner and concentrate on fitting him to discharge the functions that this proposal requires of him."

ANNOTATIONS

BRITISH POST-GRADUATE MEDICAL SCHOOL.

ALTHOUGH the post-graduate school at Hammersmith is unlikely to come into being before October of next year at the earliest, the discussions for its establishment have at last reached the stage when plans have been approved both by the London County Council and the governing body of the School. These plans include developments and adaptations of the Hammersmith Hospital, of which Sir Thomas Carey Evans is now director. Provisional plans were originally prepared for a comprehensive scheme estimated to cost £250,000, but in view of the national financial position which developed last September it became apparent that the Government were not prepared to expend so large a sum. The L.C.C. architect was consequently directed to prepare a less ambitious scheme, the total cost of which was estimated not to exceed £200,000, it being understood that the Government's contribution towards the cost would be about £100,000. It is the plans for this modified scheme which have now been approved. The new scheme provides not only for a medical school, but for casualty, receiving, and out-patient departments in two new blocks, a new ward, a central dressings sterilising room, massage and light sections. The new blocks will displace certain existing portions of the hospital buildings and, apart from the cost of equipment and furniture, are estimated to cost £160,000. Working drawings will now be taken in hand. In the meantime it will be noted with interest that the plastic surgery unit formerly at St. James's Hospital has been transferred to Hammersmith, where Sir Harold Gillies will act in an honorary capacity as chief surgeon. Mr. T. Pomfret Kilner is acting in a temporary capacity as plastic surgeon, and an assistant plastic surgeon is to be appointed.

THE DRINK PROBLEM.

BEFORE the appointment of the Royal Commission, the report of which was recently discussed in THE LANCET, a group of distinguished public men and women started an inquiry into the medical, social, and economic aspects of the alcohol problem in Great Britain. The only instruction they gave their experts and investigators was that the facts must be presented without bias or prejudice. The results have now been published in two volumes.[1] The first, which may roughly be called the medical volume, covers much the same ground as the admirable symposium published by the Medical Research Council for the Liquor Control Board in 1924. The account now published is sane and reasonable, though enthusiasts will find its impartiality rather dull. The authors have the advantage of being able to draw on Dr. H. M. Vernon's excellent book published in 1928. The chapter on the mental effects (apart from insanity) is easily the best; fortunately, it has also become, nowadays, the most important. As the editors remark in the preface, some differences of opinion among the cited authorities are inevitable; there seems too to be some mental conflict among the experts who write the various chapters. Thus, on p. 84 it is opined that "medicinal doses" of alcohol are too small to make any appreciable difference in acute infections; on pp. 90 and 91 statistical evidence is quoted at some length to show that alcohol does either no good or harm in the treatment of pneumonia; on p. 220 the same experts say "the treatment of fevers would be difficult indeed were this drug [alcohol] to be entirely removed." It is perhaps well that the reader is warned not to expect *ex cathedra* pronouncements. Each chapter has a useful list of references to the literature.

Most medical men will find the second volume less familiar and more interesting. It deals with the economic aspects of the production and consumption of alcoholic drinks, and with the relation of drink to industrial efficiency, poverty, and crime. Fresh, careful, and apparently impartial inquiries reveal that in industry there has been a great diminution in drinking and that the younger generation are very different from their fathers; they must needs keep better time in the works and outside they want to dance and play games and have decent homes, and so give drink the go-bye. Investigations in York and Edinburgh showed that about 25 or 30 per cent. of the whole of the poverty in a typical working-class district was caused wholly or partly by drink. Of various groups of crime, from 10 to 40 per cent. were found to be alcoholic in origin. Whether the employment efficiency of the drink trade is as high as that of other industries is left an open question; it seems to involve about 400,000 persons and their activities led to our spending on the average 124*s.* per head of the population of Great Britain in 1930. The sum of the whole matter seems to be that the harmful effects of alcoholic excess are indisputable and not disputed. What is needed now is a correct evaluation of the influence of small and moderate doses on judgment, dexterity, and other finer activities of the nervous system.

[1] A Review of the Effects of Alcohol on Man. London: Gollancz. 1931. Pp. 300. 8*s.* 6*d.* The Social and Economic Aspects of the Drink Problem. Same publishers. 1931. Pp. 180. 5*s.*

TRAINING IN ANÆSTHETICS.

THE lively interest in anæsthetics and the rapidly growing importance attached to this branch of work in America are well illustrated in the January–February number of *Anæsthesia and Analgesia*. It is obvious that the days of the "technician" or trained lay anæsthetist, whether a nurse or otherwise, are numbered in the United States. California has already abolished this kind of administrator, the State Legislature when amending the Medical Practice Act having adopted a resolution of the California State Medical Society to the effect that "the administration of an anæsthetic is always the function of a legally qualified medical practitioner," and that "the society condemns under all circumstances the training and qualification of lay persons as anæsthetists." The American College of Surgeons in their "Hospital Standardisation Report" lay it down that "the rapid advance made in anæsthesia during recent years has greatly improved methods of administration . . . the administration of anæsthetics in hospitals has considerable room for improvement. This can be accomplished in great degree by employing only qualified experienced persons in this department." To assure safety and efficiency there should be (1) an organised department of anæsthesia in charge of a qualified medical graduate who has had special instruction in anæsthesia; (2) a staff of trained and experienced assistants. The report also points out the desirability of complete examination and review of laboratory findings for every patient before operation and of the efficient following up of all anæsthetic

cases. Miss Mary Botsford, of San Francisco, the President of the Associated Anæsthetists of the United States and Canada, pleads for the recognition of "anæsthesiology" as a medical specialty by the American Medical Association and a requirement for its teaching in the medical schools. The last appears to us of vital importance. Without well-qualified teachers and compulsory attendance of students, anæsthesia can never receive the attention which it deserves from the point of view of the safety and the welfare of the patient. In this country we have gone some way in this proper direction, but the future is likely to see us go still further and we make no doubt that the United States will emulate our action, if they do not set us an example by making greater strides than ourselves.

A SYMPOSIUM ON PROSTATECTOMY.

THE ideal of primary closure of the bladder after suprapubic prostatectomy has for some time been before the profession. It is obvious that if the bladder can be closed by primary suture convalescence will be shortened, and many of the patient's discomforts prevented. But many of those who have attempted to gain this advantage for their patients have finally abandoned closure either because they considered it dangerous or because they found the technical difficulties of the operation insuperable. At a discussion on prostatectomy reported in the *Journal of the American Medical Association* (1931, xcvii., 1768), Dr. A. H. Peacock, of Seattle, tried to show that suture and closure is not a difficult operation, that no special instruments are required for carrying it out, and that the ideal behind it is surgically correct. In order that closure may be effected, two conditions are essential, first, complete hæmostasis, and, second, unobstructed urethral drainage. In achieving the former reliance is placed on properly placed sutures. A good view of the base of the bladder is obtained by means of a self-retaining retractor, and the sutures inserted either by means of a Young's boomerang needle, or else by using an ordinary long holder with a short curved needle. The second essential of drainage is obtained by an in-dwelling catheter, preferable a No. 26 or 28 French whistle-tipped catheter. This is anchored in position by passing one of the prostatic sutures through its eye. The catheter is removed at the end of three or four days and a smaller one inserted in its place. The average time for the in-dwelling catheter in a series of 50 cases was ten days. The incidence of wound leakage was small, and when leakage did occur it usually indicated an obstructed catheter. The average time before normal voiding was 12 days. It was claimed that by closing the bladder the comfort of the patient was greatly increased and a great saving in dressings effected. Post-operative bleeding was practically eliminated, and sloughing of the suprapubic wound never occurred.

Although there are few surgeons who would deny Dr. Peacock's contention that closure of the bladder is in keeping with general surgical principles, there would appear to be still fewer who at the present moment are prepared to follow his lead. Amongst those who took part in the discussion that followed his paper, as well as in a similar discussion held in this country about a year ago,[1] it was the general opinion that closure of the bladder is too dangerous to be adopted as a routine measure. However carefully sutures are placed, and however great the attention paid to drainage, there must always be the risk of clot retention and of obstruction. But even if Dr. Peacock, and Mr. S. H. Harris, of Sydney, have not succeeded in persuading genito-urinary surgeons in general to follow their lead they will have the satisfaction of knowing that they are working in the right direction, and that at some not too distant date their names will be recorded as pioneers in prostatic surgery.

In a contribution to the discussion by Dr. Edwin Davis, of Omaha, great emphasis was laid on the value of sacral anæsthesia in perineal prostatectomy. Anæsthesia is undoubtedly an important consideration in prostatectomy, and both inhalation and intraspinal anæsthesias carry with them definite risks. The objection that has been urged against sacral anæsthesia is that it is difficult to carry out, and that it is unreliable. Dr. W. W. Babcock has even stated that it is only efficient in 45 per cent. of cases. It is possible, however, that the reputation of sacral anæsthesia has suffered by confusion with the far less efficient method of caudal anæsthesia. At any rate, Dr. J. S. Lundy has reported that in a series of 318 cases of suprapubic prostatectomy carried out under sacral block combined with infiltration of the anterior abdominal wall, good anæsthesia was obtained in 96·5 per cent. of cases. Dr. Davis's analysis of 378 consecutive cases of perineal prostatectomy performed under sacral anæsthesia reveals the importance of technique. He found that although in the first series he had 20 per cent. of failures, amongst the last 229 cases there has not been one failure. We may therefore assume that provided the method is skilfully carried out it is extremely reliable. The objection that it demands considerable time and trouble on the part of the surgeon is less easily put on one side. The time required depends on the skill and experience of the operator. In Dr. Davis's hands sacral anæsthesia can be achieved in 12½ minutes. The maximum time required, in cases of unusual difficulty, was 30 minutes. Dr. Davis believes firmly that the use of sacral anæsthesia has contributed greatly to the lowering of his mortality-rate. In his series of 378 cases of perineal prostatectomy he has only had nine deaths, giving a mortality-rate as low as 2·38 per cent. Whatever the difficulties entailed in learning the technique of sacral anæsthesia, it would seem fully worth while to overcome them.

The last paper of the symposium deals with another aspect of the subject—namely, whether it is possible in certain cases to relieve obstruction by methods less drastic than prostatectomy. It is curious that this question should have provoked so many heated discussions amongst genito-urinary surgeons. There are two camps—those who are enthusiastic on per-urethral methods, and those who condemn them as worthless, and, because they give a false sense of security, even dangerous. The truth surely lies midway between these two schools of thought. Enthusiasts have erred in attempting to apply the method to cases for which it is unsuited, and opponents have too sweepingly denied its utility in those for which it is appropriate. To the latter we would commend Dr. Davis's paper. No one who is not blindly prejudiced could read it without being impressed with the results given by resection in his hands. The operation has the great advantage of being a comparatively trifling one, and of incapacitating the patient for only a short time. The average

[1] See THE LANCET, 1930, i., 1185.

stay in hospital in this series was four days. Dr. Davis has designed an instrument of his own for the carrying out of resection. His resectoscope consists of a sheath with a finestrum ⅞ of an inch in length near the beak, an obturator to aid introduction, an indirect vision examining telescope, and the working parts. The working parts consist of a light carrier, water conduit, direct vision telescope, and a loop electrode. The loop is placed in front of the direct vision telescope, and is made to engage the obstructing tissue to be removed. By means of this instrument as much as 24·7 g. of prostatic tissue has been removed at a single sitting from an enlarged prostate. In only seven out of a total of 246 cases was it necessary to repeat the operation. Surely this is a record which would justify any surgeon in employing this method in suitable cases. In the discussions that followed, to which many prominent American urologists contributed, many opinions were expressed. General agreement was reached on one important point—that it was impossible to regard any particular set operation as applicable to all cases. The expert genito-urinary surgeon must be prepared to do either the suprapubic or the perineal operation, and to select the technique that is suited to the particular case with which he has to deal. Either of these operations may be desirable, or the comparatively trifling procedure of resection may be indicated. The expert must be master of all three methods of treatment, and should not be wedded to any one of them.

HOSPITAL COÖRDINATION IN MANCHESTER.

AT the recent annual general meeting of the trustees of Manchester Royal Infirmary, Mr. Wilson Hey, chairman of the medical board, made some pointed comments upon what he described as the want of coördination among the local hospitals and the overlapping of services which "results in wastage of money and effort, and consequently in unnecessary suffering to the pa[illegible]s." Mr. Hey pointed out that the infirmary, [illegible] its satellites at Cheadle and Monsall, possesses sp[illegible]alists in every branch of medicine and is "almost an international hospital," but it cannot cope with the demand. "Patients wait for months in suffering for admission to its wards, while beds lie empty for months elsewhere." According to the latest report of the Manchester voluntary hospitals there is a daily average of 260 empty beds in the city out of a total of a little over 2000, excluding the municipal hospitals. The figures allow for keeping emergency beds in readiness. Mr. Hey went on to say that "on account of the want of organisation, urgencies and accidents and also chronic patients have to be taken first to one hospital and then transferred to another, often enough on the same day. Our expert abdominal surgeon is compelled to deal with fractures and our neurologist to operate upon abdomens. The inexperienced has thrust upon him cases requiring wise and rare judgment, and the experienced often wastes his time on trivialities." So far from the poor-law hospitals having fallen into a common line with the voluntary hospitals as the medical profession had expected, they remain isolated units still, as for the last 20 years, the dumping ground of the trivial, chronic, and dilatory cases, with which the rush of the general hospital cannot cope. "Our magnificent municipal hospitals," he said, "are worthy of better things than this."

In 1931 the Royal Infirmary dealt with 11,847 in-patients and 48,693 out-patients; there were, in addition, 1220 in-patients in the Barnes Convalescent Hospital at Cheadle. The cost per annum per bed occupied at the infirmary was £177 14*s*. 11*d*., an increase over the previous year of nearly £10, and the average cost of each patient £8 5*s*. 7*d*. At the Barnes Hospital the cost per bed per annum was £89 14*s*. 10*d*. The total ordinary income of the infirmary and the Barnes Hospital was £94,629, against £96,653 in 1930 and £101,946 in 1929.

WHY DO CHILDREN BEHAVE BADLY?

THE Child Guidance Clinic in Islington has now been running for three years and will in a very few days' time see its thousandth patient. Dr. William Moodie took the opportunity when addressing the Medical Officers of Schools' Association last week to give a résumé of the results and conclusions arrived at as the result of his work there. He laid it down in the first place that bad behaviour was not gratuitous and that its cause could often be found, the criterion for "cause" being that its alteration altered the behaviour. He declared himself as being unable to accept as satisfactory either the theory of original sin or the explanations of psycho-analysis; the only practical way, he said, was to consider the child as a person who must conform, as far as in him lay, to society and the standards of decent behaviour. There must be a compromise between freedom and repression, between individual tendencies and the needs of society. There had in recent years been a universal tendency to lessen repressive measures, a tendency which had perhaps gone too far. The child must be considered as a member of society and not merely as a unit. The children sent to his clinic were almost invariably referred on account of some social difficulty. Half of them came from elementary schools and a quarter from public schools, the remainder being of pre- or post-school age. In this connexion Dr. Letitia Fairfield, in the subsequent discussion, recalled an interesting inquiry into the offences considered most grave by a series of school teachers. At the top of the list had come all the symptoms of rebellion against authority, headed, in the case of women teachers, by swearing. At the bottom of the list, considered by the teachers unimportant, were those flights from reality—such as shyness, day-dreaming, and lack of attention—which psychologists know to constitute a far more serious threat to the value of the future citizen. Dr. Fairfield pleaded that teachers should learn to appreciate better the significance of bad behaviour in their children.

Although backwardness was the complaint for which the children in Dr. Moodie's clinic were referred in 25 per cent. of cases, and although it actually proved to be a factor in 50 per cent. of cases, the intelligence curve corresponded very closely to that of the population as a whole. After backwardness the commonest causes of complaint were, in order: stealing, nervousness, unmanageableness, lying, temper, enuresis, stammering, truancy, and lack of concentration. It had been found that these difficulties were nearly always grouped in fives; a child very seldom had only one such symptom. When the children were examined, gross physical defects were not commonly found—naturally such cases would go to a general hospital—but it was extremely common to find evidence of fatigue and conditions which in an adult would certainly be described as hyperthyroid anxiety states. Often these arose from environmental factors—fatigue from loss of sleep due to noisy or overcrowded bedrooms, and anxiety from broken homes, illegitimacy, and marital

unhappiness, the kind of home where the child never knew what was going to happen next. Yet there seemed to be a certain inherent factor as well, since children in exactly comparable surroundings might fail to show anxiety symptoms. Dr. Moodie thinks that he has now collected some cases where it is absolutely certain that the child cannot, in the ordinary sense of the word, have known of certain home situations such as conditions leading up to a divorce, and yet it has quite clearly "sensed" the position and taken refuge in some form of flight. He deprecated the value of the intelligence quotient alone, but emphasised by illustration the tremendous amount of information that can be obtained by an intelligent psychologist who makes notes of the child's temperament while putting him through the ordinary intelligence tests. In this way, he said, much could be learnt about the child's emotional reactions without any of that difficult, tedious, and almost invariably destructive prying into his mind which is essential if a temperament estimate is to be made directly. The child takes the intelligence tests as a kind of school examination and is unaware of the observation that is being made at the same time. He was able to give two answers to the question: why does a child adopt any particular form of bad behaviour? In the first place the particular form adopted is nearly always a regression: if the parent complains that the boy wets the bed, the history will usually show enuresis at an earlier age. In the same way, if a child assumes an attitude such as shyness or aggressiveness, a review of the past will usually show that this attitude has been successful in earlier days. In the second place there is the factor of direct example; the need for bad behaviour having arisen in the child's psychology, he may simply copy something that he sees around him or that is suggested to him.

It is of interest to learn that Dr. Moodie could find in his clinic experience no evidence that these behaviour patterns are inborn.

INJURIES OF THE COMMON AND HEPATIC DUCTS.

THERE can be few operations in surgery which call for greater craftsmanship and resource on the part of the surgeon than those undertaken for the repair of injury to the bile-duct. Howard M. Clute,[1] discussing 25 cases of this condition operated on in the Lahey Clinic at Boston, divides the causes of stricture of the common duct into four groups: (1) those resulting from cholangitis; (2) those due to ulceration round a stone; (3) those resulting from severe blows or crushing injuries; and (4) those caused by injury to the ducts inflicted at the time of some operation on the biliary apparatus. Of the cases under review, 20 belong to group 4, one to group 3, and four to group 2. Clute thinks that cholangitis is a very rare cause of stricture, basing his view on the fact that it has not occurred in his practice. E. S. Judd,[2] of the Mayo Clinic, on the other hand, considers cholangitis of the obliterative type to be the cause of a considerable proportion of strictures of the common duct that have been classified as traumatic, and gives evidence in support of his views. Clute discusses the common causes of accidental injuries of the common duct during cholecystectomy, and rightly urges that where adequate exposure of the common and cystic ducts cannot be obtained—either because of technical difficulties or because of lack of operative skill—the procedure of choice is cholecystostomy. Should the duct be injured during operation, and if the injury is recognised at the time, its repair at once is not only relatively easy, but is usually followed by good results. Unfortunately the surgeon who is most likely to injure the duct is least likely to recognise what he has done, and the increasing frequency of this type of case makes it essential to realise the fact that gall-bladder surgery is not for the inexpert surgeon, for whom it holds many pitfalls.

The cases reported by Clute were treated by a variety of methods depending on the state of the injured duct. He has had no experience of either Walton's or Mayo's methods of anastomosis by means of a duodenal flap—methods which have given very good results in a number of cases. He has, however, performed 12 operations upon nine people with the object of establishing a complete external biliary fistula, and has succeeded in three. Several of these attempts were on very ill patients who had had multiple previous operations. Complete external biliary fistulæ have been transplanted into the stomach or duodenum seven times, either in cases where the fistula existed already, or after it had been produced surgically. Of these seven cases, three have been satisfactory, and four complete failures. Waltman Walters,[3] of the Mayo Clinic, reports five cases of the transplantation of complete external biliary fistulæ, with one death. Two cases had satisfactory results, and two were much improved but had some persisting symptoms. There can be no doubt that this method of establishing a complete external biliary fistula, and then transplanting the fistula into the stomach or duodenum, is one to be reserved only for cases in which the proximal end of the injured duct cannot be found, or when found is unsuitable for direct anastomosis. It is a formidable procedure, with many failures, but in successful cases it gives a possibility of relief to patients for whom otherwise little could be done.

[1] New Eng. Jour. Med., 1932, ccvi., No. 2.
[2] Ann. of Surg., 1926, lxxxiv., 401.

PSEUDOPREGNANCY.

PSEUDOPREGNANCY is a well-known phenomenon in lower animals and is seen most simply in such animals as the rabbit and ferret which ovulate after coitus. If the buck is vasectomised in these animals, coitus, though sterile, is followed by ovulation and corpus luteum formation. The animals then develop hypertrophy of the breasts, proliferative changes can be demonstrated in the uterus, and in the case of the rabbit pseudopregnancy terminates about 19 days after the sterile coitus by the animal preparing a nest and by the secretion of milk in the breasts. In the majority of domesticated animals ovulation is spontaneous and takes place during the œstral phase of the sexual cycle. It has been shown that similar proliferation of the endometrium can be demonstrated during the corpus luteum phase in the absence of pregnancy, in the case of the bitch (Marshall and Halnan [4]), the sow (Corner [5]), the marsupial cat (Hill and O'Donoghue [6]), and the opossum (Hartman [7]). For these reasons Heape's scheme for the sexual cycle of animals has been modified and is now regarded as consisting of

[3] Jour. Amer. Med. Assoc., 1931, xcvi., 1121.
[4] Proc. Roy. Soc. B., 1917, lxxxix.
[5] Contributions to Embryology, Carnegie Inst., Washington, 1921 and 1924, Nos. 64 and 75.
[6] Quart. Jour. Micros. Sci., 1913, lix.
[7] Amer. Jour. Anat., 1923, xxxii.

pro-œstrus and the corpus luteum phase or the phase of pseudopregnancy. In the normal human menstrual cycle ovulation occurs about the fourteenth day after the beginning of the last menstrual period and an active corpus luteum persists in the ovaries until shortly before the onset of the menstrual discharge. The premenstrual phase of the human menstrual cycle is therefore homologous with the experimental pseudopregnancy of the rabbit and ferret and with the pseudopregnancy phase of the sexual cycles of such animals as the bitch and sow. In a recent paper D. Macomber [8] attempts to identify a separate clinical state of pseudopregnancy in the human female. Two cases are described in which patients passed decidual tissue from the uterus after having been 11 and 14 days overdue with their periods. In both cases chorionic villi could not be found in the discharge. In one case the husband was proved to have aspermia, in the other the husband's fertility was shown to be extremely low. The interpretation placed upon these cases is that they represent comparable states to the pseudopregnancy of lower animals. This interpretation of the two cases demands severe criticism. In one of the cases the patient is stated to have had irregular menstrual periods, in the other no details are given of the past menstrual history. It is not uncommon for women to have prolonged menstrual cycles and Wilfred Shaw [9] has shown that such cases can be attributed to irregular ovulation; it is therefore possible that the two cases can be explained along these lines. During the late premenstrual phase of the cycle the stroma cells of the endometrium hypertrophy to such a degree that they resemble the decidual cells of early pregnancy; indeed it is often difficult to distinguish between the decidual reaction of the late premenstrual phase and that of early pregnancy. Similarly ectopic decidual cells can be demonstrated in the ovaries during the late premenstrual phase of the cycle. Macomber's explanation of his cases is therefore unconvincing, for both the missed periods and the discharge of decidual tissue from the uterus can be accounted for without resorting to the hypothesis of a pseudopregnancy. Moreover, as has been indicated above, the premenstrual phase of the normal cycle is homologous with the pseudopregnancy of lower animals.

THE PAGET TRADITION.

Sir James Paget had many contemporaries of distinction but none of them has so captured the imagination of a generation that never knew him. His "Memoirs and Letters" are read and re-read by many who ordinarily have little taste for matters historical. When Prof. Grey Turner received the Henry J. Bigelow medal of the Massachusetts Medical Society at Boston last June it seemed quite natural to him and to his hearers that his address[10] should be about the "Paget tradition." There were special reasons, too, for the choice of subject. Paget was a man after Bigelow's own heart; in 1882 he was elected an honorary member of the society; and in company with Dr. Harvey Cushing, another member of the society, the lecturer was one of the six perpetual students of Paget's old hospital. Most of my teachers, Prof. Turner remarked, had come under the spell of Paget, with them his example was a tradition, from them the torch was thrown, and I felt I was only fulfilling a sacred trust to hand it on. Foremost in the Paget tradition he put his example as a worker, for like John Hunter his friends always found him employed, and it has been said that he so loved work that he estimated the worth of his acquaintances by their output of it. In public duty he was punctilious to a fault and careful of the time of others, as he would expect them to be of his own. As a medical writer he had no rival, using pure and perfect English without effort. In an age of orators he was acknowledged one of the best speakers of his time. Many of his published lectures rank among the classics of medical literature and are read to-day for their grace and charm, as well as for their wisdom. He made great contributions to clinical surgery, and his original papers on the diseases of the breast and of the bones associated with his name still remain complete and perfect descriptions. He might, concluded Prof. Turner, have been a success in any honourable walk of life, but he had chosen the profession of medicine, he loved his avocation, and had the highest sense of the importance and dignity of his calling. And in simple and reverent language, enhanced by apt quotations from Paget's writings, Prof. Turner drew a picture of the man as he lives in our memories, with his tenderness and austerity, the light heart of his seriousness, the gentleness of his firmness.

[8] Jour. Amer. Med. Assoc., Jan. 23rd, p. 304.
[9] Jour. Obst. and Gyn. Brit. Emp., 1929, xxxvi., 1.
[10] Published in New England Journal of Medicine, 1931, ccv., 622–9.

VOTING AT EPSOM COLLEGE.

WE are asked to give publicity to the following statement: "Although the Governors of Epsom College unanimously decided at an extraordinary general meeting in June, 1931, to take the necessary steps to abolish the voting system, no change can be made until the scheme has received Parliamentary consent. The earliest date at which Parliament can sanction the proposed legislative changes, coupled with the statutory requirements and other unavoidable preliminaries of an annual election by votes of the governors, makes the cancellation of this year's voting in June impracticable, and therefore it will be necessary to adhere to the system of voting for the year 1932. Voting papers will be forwarded to all governors in due course."

BLOOD-GROUPS AND PATERNITY.

IN Dublin lately the blood-group test of relationship was accepted as evidence, for the first time, it is said, in any court in the British Isles. A district justice had made a maintenance order against an elderly man on the complaint of a young woman on behalf of her illegitimate child. The defendant appealed to the circuit court, and evidence was produced to show by blood-grouping that he could not be the father of the child. The test was carried out in the presence of the solicitors of the two parties by Dr. G. C. Dockeray, Dr. J. H. Stephens, and Dr. J. McGrath. Other evidence was also produced, and the judge reversed the decision of the district justice. The test is widely used in Germany, Austria, and Scandinavia,[1] but, as already stated, we do not know of its application in this country. It may be recalled that the precipitin or immunological test for human blood was accepted in criminal cases in Ireland for some years before it appeared in the courts of Great Britain. It was introduced to Ireland by the late Prof. E. J. McWeeney.

WE regret to announce the death on Wednesday, Feb. 24th, of Sir Frederick Andrewes, F.R.S., Emeritus professor of pathology in the University of London.

[1] See Schiff, F., THE LANCET, 1929, ii., 921.

SPECIAL ARTICLES

POLIOMYELO-ENCEPHALITIS
IN VICTORIA (1925–1931).
TREATMENT BY HUMAN IMMUNE SERUM.

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HON. MEDICAL OFFICER TO THE PHYSIOTHERAPY DEPARTMENT, CHILDREN'S HOSPITAL, MELBOURNE; CONSULTANT TO THE VICTORIAN COMMITTEE FOR POLIOMYELITIS, APRIL, 1925, TO AUGUST, 1931;

AND

F. G. MORGAN, M.B. MELB.,

DIRECTOR, LABORATORIES DIVISION, COMMONWEALTH DEPARTMENT OF HEALTH, AUSTRALIA.

IN April, 1925, an increase in the incidence of poliomyelitis in Melbourne suggested the possibility of a severe epidemic, and an organisation [1] was formed to prepare for this emergency. The six objectives then determined have been followed during the period under review.

1. The preparation of a supply of serum from the blood of persons who had had an attack of poliomyelitis within recent years.

2. The education of the medical profession in the syndrome of the preparalytic stage, and the education of profession and public to the importance of diagnosis before paralysis.

3. The provision to practitioners of help in diagnosis by a consultant prepared, if the clinical findings justified the procedure, to carry out lumbar puncture and examination of the cerebro-spinal fluid at the bedside.

4. Control of the distribution of serum to obviate waste and the possibility of bringing the therapy into disrepute by the use of serum in unsuitable or unproven cases.

5. The collection of clinical records to permit assessment of the value of the therapy.

6. The attempt to ensure that every paralysed patient received adequate after-care by splinting and muscle re-education.

Preparation of Serum.

By various means suitable donors were traced through searches made at hospitals, splint-makers, surgical boot-makers, records of notifications and invalid pensioners, house-to-house visits, and the diagnosis verified by examination of the residual paralysis. Fortunately, 12 young adults survived the epidemic which occurred during April and May, 1925, and these proved our most valuable donors for some years—giving blood gratuitously until 1928, when a system of payment was introduced. Details of the preparation of serum have been published in the *Medical Journal of Australia* in 1927 [2] and 1928,[3] but in 1930 slight modifications of the method resulted in a higher yield of serum, thus lowering the cost of production. A brief description of the method will be given, because it is possible that the method of preparation adopted may influence the results obtained in treatment.

The donor being recumbent, the band of a sphygmomanometer is wrapped round the arm and the skin over the elbow cleansed with ether, soap, and acetone-cyllin-methylated spirits lotion. Sterile towels are applied. The needles used are freshly sharpened rustless steel needles of large calibre (1·65 mm. gauge). After boiling, the needle is rinsed with oxalate solution and connected by means of sterile paraffined rubber tubing to glass tubing, and thence to the receiving vessel, which contains a measured amount of 10 per cent. potassium oxalate solution. The arm band is inflated until the vein is evident, the needle being inserted with the point directed towards the hand. In most donors blood flows most quickly when the sphygmomanometer registers 30 mm. Hg, but the optimum pressure varies during each bleeding. The donor is told to open and shut the hand slowly, firmly, and steadily, and the receiving vessel is gently shaken as the blood enters. Ample supplies of blood have been obtained by venepuncture. Neither venesection nor aspiration has been found necessary. The quantity of blood withdrawn has been regulated by the donor's wishes, occupation, and condition, not by any limitation of the technique described. Table I. shows the amount of blood withdrawn during the period under review.

TABLE I.

Year ..	1925–1927.	1927–1928.	1929.	1930.	1931.	Total 1925–1931.
Total volume of blood during period	4,650 c.cm.	20,563 c.cm.	15,370 c.cm.	18,870 c.cm.	24,585 c.cm.	84,038 c.cm.
Number of bleedings	34	53	28	35	49	199
Average amount of blood withdrawn per bleeding	136·7 c.cm.	388 c.cm.	545 c.cm.	539 c.cm.	501·7 c.cm.	422 c.cm.

A sample of blood is taken for the Wassermann test from each specimen withdrawn. The collecting vessels containing fluid blood are taken to the laboratories where the blood is centrifuged. The supernatant plasma is then syphoned from the underlying closely packed corpuscles. The plasma from each patient is kept separate until the report of the Wassermann test is received, when the various quantities are pooled. In bleeding 83 persons we have not had a positive Wassermann reaction. After pooling, the plasma is distributed into clotting jars to which is added calcium chloride solution of specific gravity 1022, in amount as calculated from the table printed in the earlier publication.[3] A clot quickly forms, is expressed from the serum by means of superimposed brass weights, and the serum is then altered through Seitz E K special type of filter disc. No antiseptic has been added, but great care is taken during the procedure. A second filtration through a bacteria-proof filter is made, and exhaustive tests for aerobic and anaerobic organisms at 37° C. and at room temperature are made upon the samples of the serum in bulk. The serum is distributed in sealed ampoules, each containing 10 c.cm. of serum, and further sterility tests are made at the time of bottling. During the 21 days after withdrawal of blood the donors are watched for the development of any disease, such as measles, caused by filter-passing organisms. Table II. shows the percentage yield of serum and the average yield per donor.

TABLE II.

Year ..	1925–1927.	1927–1928.	1929.	1930.	1931.
Number of bleedings ..	34	53	28	35	49
Volume of blood obtained	4,650 c.cm.	20,563 c.cm.	15,370 c.cm.	18,870 c.cm.	24,585 c.cm.
Volume of serum obtained	1,789 c.cm.	7,820 c.cm.	6,050 c.cm.	8,500 c.cm.	12,500 c.cm.
Percentage yield of serum	38·2	38	38·9	45	50·8
Average yield of serum per donor	52·6 c.cm.	147·5 c.cm.	216 c.cm.	242·8 c.cm.	255·1 c.cm.

In 1930 the centrifuge was first used, and an increase in the percentage yield will be noticed for that year. The highest yield of serum from a single pool was 55·5 per cent., composed of serum from nine donors. In the earlier years the serum was grouped according to the interval which had elapsed since the onset of the disease of the donor, but in 1930 this method was abandoned, and we have in each group pooled sera from eight to eleven donors affected in

different epidemics in different localities. This step was taken after experimental work with monkeys by Burnet and Macnamara [4] which, within the limitations of the tests employed, indicated that serum from cases affected three to five years previously possessed viricidal properties equal to that of more recent cases. In the course of this work evidence was obtained [5] that more than one strain of virus may exist which suggested the policy of pooling sera from many individuals.

During the period under review, 1925 to 1931, 83 persons have given blood in a total of 201 bleedings: 39 were bled once only; 11, twice; 17, three times; 8, four times; 3, five times; 1, six times; 2, seven times; and 2, nine times.

The time which elapsed between the onset of the disease and the withdrawal of blood for the preparation of serum was:—

	Instances.		Instances.
Under 1 year ..	86	Between—	
Between—		6 and 7 years ..	3
1 and 2 years ..	32	7 „ 8 „ ..	2
2 „ 3 „ ..	32	8 „ 9 „ ..	1
3 „ 4 „ ..	7	10 years and over ..	21
4 „ 5 „ ..	7	Total	201
5 „ 6 „ ..	10		

The product obtained has the following advantages. Though free from antiseptic, it can be stored at ice-box temperature and used with safety after several years, the viricidal properties being retained. A minimum of hæmolysis has occurred, and secondary formation of fibrin has been absent. In the literature [6] one reads of reactions occurring following the injection intravenously and intrathecally of human serum. In the 260 patients to whom serum has been administered in Victoria, no unpleasant reaction has occurred, and it is suggested that while the reason may be the freedom from hæmolysis and from added antiseptic, another explanation may be that removal of fibrinogen during clotting produced by the addition of calcium chloride is more complete than that which occurs when blood is allowed to clot naturally.

Use of Serum.

Victoria has an area of 87,884 square miles and a population of 1,777,065, of whom 1,036,630 live in the capital city, Melbourne. The incidence of poliomyelitis in Victoria since this work has been undertaken has been as follows:—

November, 1924, to	November,	1925 ..	..	134
„ 1925, „	„	1926 ..	..	—
„ 1926, „	„	1927 ..	..	6
„ 1927, „	„	1928 ..	..	182
„ 1928, „	„	1929 ..	..	157
„ 1929, „	„	1930 ..	..	97
„ 1930, „	July,	1931 ..	..	270
„ 1930, „	Aug. 18th,	1931 ..	..	297
Total ..	..	..	..	..	873

In 1925 only one case was diagnosed before paralysis. Serum was administered to 12 patients after paralysis had been present for some days. These cases have been examined regularly, and their progress noted and compared with that of others with similar initial paralysis among the group of cases who did not receive serum. The degree and rate of recovery of power in the serum cases was no better than that of the controls who received identical after-treatment, and we soon realised that it was not justifiable to administer expensive serum to afebrile patients after paralysis had been present for some days. Education of the profession and the interest of the public resulted in an increase in the proportion of cases diagnosed before paralysis, until, in 1931, of 270 cases, 86 were treated in the preparalytic stage.

The Preparalytic Stage.

The type of case with fulminating onset has been exceedingly rare. The mode of onset has been either the straggling or dromedary types described by Draper.[7] In the former the illness has lasted from two to seven days; in the latter a period up to 14 days, which include an intermission of apparent recovery. The usual story in this type is one of two or three days' indefinite illness, fever, vomiting, drowsiness, and lassitude, then improvement for a period in which the child may resume attendance at school followed by a second phase of illness, which after 24–48 hours is followed by paralysis.

The syndrome of the preparalytic stage can be recognised. It varies slightly in different age-groups, in babies under 12 months, in children and in adults, in different epidemics, in different phases of one epidemic and in different parts of the country, but our experience has confirmed that of American [8 9] and New Zealand [10] observers—that it is possible to be reasonably certain of the diagnosis by clinical examination before seeking the confirmation of cerebro-spinal fluid findings. Fever is usually present; it is rarely high in the early weeks of an epidemic, though temperatures of 103°–104° F. often occur during the peak months. In adults the temperature may be no higher than 100° F. (37·8° C.). Headache is a common complaint of older children, and in adults may be severe. Drowsiness when left alone and irritability when disturbed is a common story of the parent, but the irritability has differed from that of children with meningitis. If time and patience and gentleness be given to the examination, and the child reassured, the usual finding is one of intelligent coöperation. Pain in the neck or between the shoulder-blades is frequent. Pain may be referred to a limb which will later become hyperæsthetic. Vomiting once has been the usual story. Convulsions rarely occur, and persistent convulsions suggest another diagnosis. Photophobia, retention of urine, localised sweating, tremor of the hands do not occur in every case, but any one of these symptoms is a valuable warning. Constipation is usual.

SPINE SIGN.

The most valuable sign has been the spine sign. By this is meant disinclination to flex the spine anteriorly because of the pain involved by the movement. Although spinal rigidity of a degree comparable to the opisthotonus of tetanus or cerebro-spinal meningitis may occur in preparalytic poliomyelitis, if one expects head retraction of that degree, the majority of cases will be missed.

The spine sign must be deliberately elicited. It is not wise to try to elicit it with the child in a recumbent position by placing the hand under the head and bringing the head forward. Almost any febrile child resents that handling. If the fever is not high, take the child from the bed, place him in the sitting position, or nurse him comfortably in the arms and gently persuade him to kiss his knee. The child attempts to carry out the movement and gives up "because it hurts" either at the back of the neck, between the shoulders, or in the hamstrings, or in some cases throughout the whole length of the back. In order to obtain his coöperation bribe him with a penny as a prize if the lips meet the knee. Even with help by passive movement, if a spine sign be present the child, though anxious for the penny, cannot earn it. In adults or in children when fever is high, carry out the test with the patient lying on his side, and passively flex the spine as far as the patient will allow. In babies, one has to rely on passive flexion in order to estimate the amount of pain caused by the movement.

Amoss's sign, though not invariably present, can often be elicited. When the child is placed in the sitting position on a firm chair or table, the position assumed is that of a tripod, the child using both arms to support part of the body-weight and to throw

the spine into hyperextension. If asked to fold his arms he tries to do this, but quickly reverts to the tripod position.

Differential Diagnosis.

The differential diagnosis [11] covers a wide field of clinical medicine, and cannot be dealt with in detail here. The suspicious cases seen in consultation during the six-year period may be classified as follows :—

(*a*) The group in which clinical examination has rendered lumbar puncture unnecessary. (1) Acute febrile diseases which may be imitated by the preparalytic stage of poliomyelitis: pneumonia, tonsillitis, influenza, otitis media, pyelitis, the exanthemata, dysentery, sunstroke, and malaria. This group has caused the greatest difficulty. (2) Cases in which poliomyelitis is suspected because of the inability to use a limb or because of the development of a limp, the actual cause being: injury, acute rheumatism, inguinal adenitis, scurvy, syphilitic para-epiphysitis, osteomyelitis, hysteria, peripheral neuritis, lead poisoning, diphtheritic paralysis, tetany, erythrœdema, spinal cord tumours, or lesions of cerebral vessels.

(*b*) The group in which examination of the cerebro-spinal fluid is required: meningitis, tuberculous, cerebro-spinal, pneumococcal, streptococcal, staphylococcal, or influenzal; the meningeal complications of typhoid or parotitis, subdural or subarachnoid hæmorrhage, tetanus, uræmia, meningo-vascular syphilis, encephalitis following varicella or vaccinia, encephalitis lethargica.

It has been strongly emphasised that even in times of epidemic, in the absence of definite indication, lumbar puncture for diagnostic purposes in cases of acute illness is not justifiable, but that every patient suffering from an illness for which a definite cause cannot be found by careful clinical examination should be carefully watched and frequently re-examined in order to detect the first evidence of meningeal involvement, when one still has time to confirm the diagnosis by examination of the fluid and time to administer serum. It has been shown by Lyon [12] that cytolysis occurs in the cerebro-spinal fluid if the fluid is allowed to stand after withdrawal, and that this cytolysis is selective, destroying the polymorphonuclear elements more rapidly than the mononuclear cells. For this reason and for the other that the treatment of preparalytic poliomyelitis is an urgent matter, comparable to that of a ruptured ectopic gestation or intussusception, arrangements should be made for examination of fluid at the bedside. The procedure adopted has been as follows :—

A careful clinical examination having failed to reveal any other cause for the illness, consideration of the signs and symptoms leading one to make a clinical diagnosis of poliomyelitis, it is decided to carry out lumbar puncture. The microscope and counting chamber are placed in readiness, together with the reagents for the Nonne-Apelt and Pandy's tests and toluidin-blue solution. The needle is inserted, a few c.cm. of fluid are withdrawn, and the stillette is reinserted and kept in position while the fluid is examined. If the cells be not increased the needle is then withdrawn. If the cells are increased, they are stained with toluidin-blue and the number of polymorphonuclear and mononuclear cells counted. If the history has led to the suspicion of tuberculous meningitis, the chloride content of the fluid is estimated, for in poliomyelitis this is not reduced. If the fluid findings confirm the clinical diagnosis, the stillette is then withdrawn, fluid is allowed to escape, and a slightly smaller quantity of warmed serum is slowly administered intrathecally by attachment of tubing and funnel to the lumbar puncture needle.

Thus the one anæsthetic which may be necessary in a child is sufficient for diagnostic lumbar puncture, intrathecal and intravenous injections.

The findings in the cerebro-spinal fluid vary at different stages of the disease, and this variation is pathognomonic of preparalytic poliomyelitis. Early in the preparalytic stage the polymorphonuclear cells are increased, but they disappear as the lymphocytes increase until, at the stage of paralysis, only 5 per cent. to 10 per cent. of cells are polymorphonuclear. Globulin appears late in the preparalytic stage, and does not reach its highest concentration until paralysis has occurred, and it persists after the cell count has returned to normal. Details of the findings of the cerebro-spinal fluids examined will be found later in the case records (Table III.).

Dosage.

Increasing experience has impressed upon us the importance of an adequate initial dose of serum. By administration of a product containing proven viricidal properties, one attempts to give the patient a passive immunity, but the time factor is all important. Untreated, the majority of cases develop an immunity for themselves within the next few days; but during that period damage may be done to the nerve-cells which will alter the whole life of the patient. If therapy is to be effective, the virus must be inactivated by the viricidal properties of the serum and the disease cut short before the nerve-cells die. For this reason one cannot afford to delay between withdrawal of fluid and administration of serum while the fluid is sent to a laboratory for examination. Secondly, it appears unreasonable when the patient's future may depend on the race between development of passive immunity and the death of anterior horn cells, to administer serum intramuscularly or subcutaneously. Thirdly, it is imperative that the product used should possess as high a titre of viricidal properties as it is possible to obtain.

Aycock [14] and others [13] have demonstrated that serum of certain normal adults possesses viricidal properties, possibly developed during a subclinical infection. The only method of distinguishing those persons whose sera is so effective is by testing the power of individual specimens of sera to neutralise virus in vitro before innoculation of the serum-virus mixture into the brain of a monkey.

In most diseases the administration of inactive serum is not likely to cause positive harm; but in poliomyelitis the injection of inert serum may actually tend to promote paralysis. Flexner and Amoss [15] have shown that in monkeys who have received poliomyelitis virus intravenously, intranasally, or subcutaneously, the introduction of aseptic normal serum will promote invasion of the central nervous system. The condition of these monkeys is closely analogous to that of children in the preparalytic stage. Moreover, Schultz [16] has demonstrated that the time taken for immune serum to neutralise virus varies with the concentration of the serum—dilution delaying inactivation of virus. Our clinical experience has impressed upon us the brevity of the interval between the phase at which recognition of the disease is possible and the latest moment at which an injection of potent serum will avert paralysis. This fact, together with the reasons discussed—(1) the possibility of causing positive harm, (2) the certainty of delay in neutralisation of virus by dilution of any active serum which may be present by inert components—has led us to oppose the suggestion to use pooled normal human serum, of which the whole or part may be lacking in viricidal properties. By the after-care of all potential donors it has been possible to obtain adequate supplies of immune serum, and

therefore it has not been necessary to carry out the preliminary testing of specimens of normal sera which alone would justify its use.

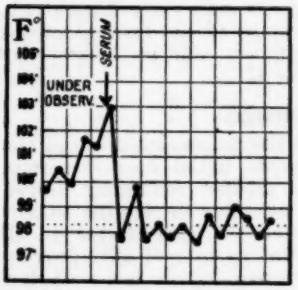
In estimating the dose of serum required, one takes into consideration the following points: the age and size of the patient, the degree of toxæmia, the stage of the epidemic, and the duration of his illness, particularly the duration of the signs of meningeal involvement and the cerebro-spinal fluid findings. A patient in whom a history is obtained of illness eight to four days previously, followed by an interval of apparent recovery lasting for two to three days, followed by the second phase of his illness with pain in the neck and back, fever, and a spine sign lasting over 24 hours, has little time to lose. The development of tremor and hyperæsthesia suggests that already some involvement of motor cells and sensory ganglia has occurred. These symptoms call for a larger dose than that which should be given to a patient who has developed a spine sign within the last six hours after two days of observation.

The type of cell found in the fluid is of assistance in estimating the dose required. When almost all the cells are lymphocytes, paralysis is not far off, and therefore the dose should be increased.

The initial dose of serum used has been rarely less than 50 c.cm. After the cerebro-spinal fluid has been allowed to escape, a slightly smaller quantity of serum is administered intrathecally, and the remainder of the dose administered intravenously, even though venesection may be necessary. The patient should be carefully re-examined 12, 18, and 24 hours later. If the dose has been adequate, though spinal rigidity will persist, the temperature should have fallen, and the general condition be greatly improved (Figs. 1 and 2). During the interval other confusing factors should be eliminated. These patients are usually constipated, dehydrated, and slightly acidotic, the pain in the neck having prevented ingestion of fluid. After administration of serum, a brisk aperient should be given, and carbohydrate and fluid administered freely by means of a spoon or bent glass tube or feeding-cup, which will save the patient the discomfort of flexion of the neck.

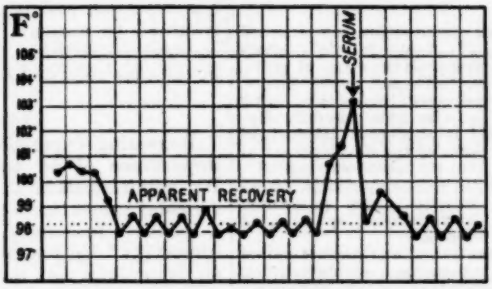
If improvement is not marked within 18 hours, we have considered that an insufficient dose has been given, and a further 30 to 40 c.cm. has been injected intravenously (Fig. 3). The failures in the series have taught us the importance of this examination 12, 18, and 24 hours after the first, and have influenced us in omitting antiseptic from the serum. If, 12 to 18 hours after injection of a product containing antiseptic, fibrinogen, or hæmolysed red cells, the temperature is still elevated, the patient still miserable, complaining of headache, perhaps vomiting, one cannot estimate how much to attribute to reaction to the therapy and how much is due to insufficient dosage. The use of a non-irritating serum does not cause confusion at this important stage. In our series, if the patient had not improved within 20 hours, there has been one reason only—insufficient dosage.

FIG. 1.



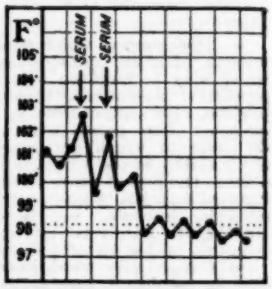
Satisfactory response to injection of serum.

FIG. 2.



Dromedary type of onset. Satisfactory response to injection of serum.

FIG. 3.



Unsatisfactory response to first injection. Second dose was required and given. Response was satisfactory.

While experimental work on the production of immune sera by the inoculation of horses with filtrates and suspensions of the spinal cords of monkeys infected by poliomyelitis virus [17] may in the future lead to the production of serum of therapeutic value, it would appear that the reactions at present induced by injections of horse serum are, in this disease, a serious disadvantage.

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(To be continued.)

SUSSEX PROVIDENT SCHEME.—The sum of £17,537 was distributed among the coöperating hospitals under this scheme during 1931. Inaugurated in 1921, when only £332 was distributed, the amount has increased each year, and local hospitals have received over £90,000. In the allocation for 1931, the Royal Sussex County Hospital, Brighton, received £6806; the Royal Alexandra Hospital for Sick Children, Brighton, £2199; the New Sussex Hospital, £1554; and Hove Hospital, £1052. Other substantial allocations included Haywards Heath Hospital, £984; Sussex Eye Hospital, £804; and Brighton Corporation, £662. Twenty-two other hospitals and kindred organisations as far afield as Hastings and St. Leonards, Horsham, and Arundel and Littlehampton also participated.

THE LANCET COMMISSION ON NURSING.

(*Continued from p. 417.*)

THE second section of the Final Report is entitled the

Evolution of British Nursing.

The early history of nursing, from the institution of the Deaconesses in the first century A.D. and the Order of Women Clergy, the Widows, and Deaconesses recognised by the Church in the IVth and following centuries, is traced through the mediæval developments to the phase when the military orders had their origin in the events of the Second Crusade. The date of the foundation of the Knights Hospitallers of St. John of Jerusalem is 1100, and an interesting Order, the Béguines, was almost contemporary in its birth at Liége. Many religious and secular Orders arose in France, Italy, and Germany during the next three centuries, but the practice of nursing received small impetus from them.

In the XVIIth century Vincent de Paul founded the Sisters of Charity, but their functions were restricted, and a general decline in nursing marked the XVIIth and XVIIIth centuries, the evil times being protracted until the middle of the XIXth century. Nursing as a calling was at its lowest level by the beginning of the XIXth century, nowhere having shared in the general development of social amenities. In 1822 the Kaiserswerth movement preluded real advance.

At the beginning of the XIXth century there was no organised nursing in this country, and an awakening of the public conscience did not come until some 20 years after the Kaiserswerth example had been set.

Details are given in the Report of the plight of certain London hospitals at this time. Until as late as 1840 many of the women hired to nurse in hospitals were given such low wages that no preliminary inquiry into their character was convenient, and it is not surprising that we read of charges brought against them of unchastity, drunkenness, bad language, and pilfering. The quality and quantity of their food-supply and their sleeping accommodation, when provided within the walls, was often disgraceful. It is not the failings of women placed in such circumstances that should be wondered at, but their virtues. The life of many of them was a record of self-sacrifice. They could only render such help as they were competent for, and in the dismal situation it is comforting to recollect that the technique required of them was no more than the rendering of domestic duties in sad and sometimes revolting circumstances. The position of being regarded as a good nurse was attained when a woman, through experience, obtained a knowledge of how to dress wounds and how to relieve pain by suitable applications and by changes of posture. A certain number of nurses would learn to interpret symptomatic troubles, and so to gauge the seriousness of a case. The qualities of such women were perceived by the medical staff, but were otherwise unrecognised. The depressing attitude of those responsible for the management of the institutions was that, in such surroundings, only those nurses need be expected whose standards were in accord with the environment.

Early efforts at reform are described, the institution of the British Nursing Orders, and finally the grand revolution in nursing that came with the Crimean War, and the modern developments of Florence Nightingale's pioneer work.

Modern Times.

These developments, says the final paragraph of this section of the Report, have produced a service of nursing working successfully in institutions from which every vestige of the ancient horrors has disappeared. But these horrors once existed, and certain of them could only have been eradicated by the presence of women who were known to have definitely renounced worldly aims, dedicating themselves to an austere life under rigid discipline, the discipline being enjoined partly at least to protect young women from slander and to satisfy parents of their safety. Their submission to or acceptance of the strict conditions laid down had a productive result, for standards of decency and of equipment in hospitals were quickly raised. All this must be remembered when the traditional hospital training is criticised. If the machinery has been altered too slowly to correspond with modern requirements, its pattern was at one time admirably appropriate, even essential, to the work which had to be done. It is because the impetus towards an exclusively vocational ideal has been so fervent and so lasting, that even now some hold the outlook of the young professional woman of these times to be incompatible with the practice of nursing.

To-day, with the progress of medicine, the degree of coöperation required by the doctor from the nurse has increased, and has made necessary certain changes bringing with them a need of developing qualities of discretion, resourcefulness, and scientific observation in the student nurse. Experience has shown that these may be cultivated without sacrifice of the vocational ideal, though the discipline which fosters them may be of a somewhat different order than that enjoined by tradition.

The whole of Section III. of the Report on the present position of nursing is set out in full below.

The Present Position.

The establishment in 1919 of the General Nursing Councils gave nursing a definite professional status. Certain hospitals only were approved as training schools, and a standard curriculum was instituted, leading up to examinations for admission to State registers. Unfortunately these developments have not been effective in increasing the popularity of nursing as a profession for educated women, although, during the last 12 years, other professions and occupations open to women have become increasingly crowded.

THE BARRIER TO COÖPERATION.

The nurse's conditions of training and service have fallen into relative disfavour not only with young people in search of a career, but also with their advisers, and with women in other professions. On the other hand, nurses themselves are distressed and even indignant at what they regard as an undeserved prejudice against hospital life.

The nursing profession as a whole tends to view the conditions of service and training now available in the light of those offered in the past, even as recently as ten years ago, and finds them immeasurably more favourable; whereas women in other professions, and girls debating their future career, are apt to brush aside as irrelevant any description of past conditions, and to survey hospital life as it actually is to-day, detached from its background of fine tradition. The divergence of outlook forms a barrier, the more formidable because it has not been openly acknowledged,

which hampers free discussion between those within and those without the profession, and which must be broken down before sympathetic coöperation can be achieved. An atmosphere of tension and mutual misunderstanding has therefore grown up which it is difficult to dispel by argument.

MISCONCEPTIONS ON BOTH SIDES.

It is probably true that the prejudice against nursing which is undoubtedly present in the minds of parents, schoolmistresses, and young girls, is partly based on ignorance of the improvements which have been made in the conditions, accommodation, and amenities now offered to probationers in the best training hospitals. There is still a widespread belief that nurses in training are worked excessively hard, are allowed no freedom, are subject to unduly severe discipline, and are neither fed well nor lodged comfortably. A girl to whom nursing is proposed as a career envisages a period of three years at least of drudgery, during which time she will be cut off from her friends, her games, and her social amusements, will be always overtired physically, and often snubbed and reproved. Reiterated assurances that this dark picture no longer represents—if it ever did represent—hospital life do not serve to obliterate it. It will fade completely only when it is patently untrue to life in every hospital in the country, for its colours are constantly being revived by reports from probationers who have not been fortunate in their selection of a training school. Further, general recognition of improvements in conditions has been delayed not only by a lack of uniformity in their adoption, but also by a reluctance on the part of hospitals to give wide publicity to such changes, with the implied admission that they were necessary or even overdue. It is therefore not remarkable that misconceptions still obtain. The clear picture of present-day hospital life provided by our Second Interim Report (see Appendix XVIII.) should do much to remove them. It also shows that the conditions which gave rise to prejudice in the past have not been wholly eliminated.

"WHAT MORE DO THEY WANT?"

Senior nurses who have watched with amazement, and not always with approval, the improvement in the conditions offered to probationers during recent years, express themselves at a loss to understand why girls are not attracted to this work in large numbers. When faced with a shortage they ask: "What more do they want?" The recital of what they do want, or what their parents, headmistresses, or sisters in other professions want for them, is, however, likely to be coldly received. It may even be resented as criticism of a system which tradition has made sacred, and which has admittedly produced nurses unsurpassed throughout the world for perception, skill, and sense of responsibility.

How can a better understanding be brought about? The first essential is a candid exploration of the issues involved, and a determination to find common ground. The basis of this common ground must be the recognition on both sides that while a professional organisation has been superimposed on a system of apprenticeship, this system is valued not only because it is sanctioned by tradition, but for its own sake.

THE VALUE PLACED ON ROUTINE.

The element of apprenticeship is regarded by most of the leaders of the nursing profession, at least in this country, as a far more important part of a nurse's training than her theoretical studies. Some senior nurses, notably ward sisters, may still be heard to protest that the vocational spirit which inspired former generations of nurses has been dimmed by the introduction of a standard curriculum. Although most of them are now beginning to realise that their early fears in this respect were unfounded, they attribute the preservation of the vocational spirit to the retention of a factor in hospital life which has been severely criticised from outside the profession, and is stated to have prevented many girls from entering hospitals. This factor is the routine work of the probationer, occupying nine to ten hours a day. It has not been modified to give her more time and leisure for study; and though the passing of State examinations is now essential to her career, she must fit in her theoretical work and at least some of her lectures during her official off-duty time.

Women in other professions are apt to regard such long hours of routine work, the restrictions on liberty when off duty, in short, the scanty opportunity given to the nurse in training to lead a normal social life and to cultivate interests apart from her work, as being associated mainly with the desire of the hospitals to economise at the expense of their staff. They criticise senior nurses for acquiescing without protest in a system which admits of the exploitation of student labour. But they fail to recognise that a large section of the nursing profession, especially ward sisters, remain convinced of the value of a strict discipline, which is designed to plant and foster in the probationer certain qualities and habits. Among these are uncritical obedience; punctuality; loyalty to superiors and to the institution served; together with a sense of responsibility and of vocation which, in the opinion of many, is incompatible with the cultivation and maintenance of wide interests outside the hospital community.

A CONFLICT OF IDEALS.

It is this attitude which underlies the disregard of the mental conflict that may trouble a probationer who comes from a good secondary school; there her duty has been primarily to learn, her critical faculty has been stimulated, and her practical work has been assessed for precision and neatness and a grasp of principle, rather than for a speed of execution which to a beginner is incompatible with a high standard of efficiency. She soon learns in hospital that her first duty is to help to get the work done, and in some hospitals she must also learn to subdue her critical impulses and even her curiosity. It is assumed that she will never make a good nurse unless she regards her time as the hospital's and not her own, and her training as incidental to the work she does as employee. A receptive young nurse soon absorbs this spirit, and is in her turn shocked at the solecisms and breaches of etiquette committed by newcomers. But in the process of acclimatisation she is liable to adopt blindly the traditions of her seniors—the reaction has been aptly described as "putting on the blinkers"—and to become as impervious as they are to the fact that the educational methods practised in hospitals have been largely superseded elsewhere by methods which rely on arousing, instead of damping, curiosity and initiative, and which insist on the importance of developing a student's personality and tastes outside the range of daily work.

It is only the exceptional nurse, that is, one who has maintained close touch with the social and educational tendencies of the day, who is able to discern which of the peculiarities of hospital life are essential to its structure, and which are mere survivals from a different age, and could safely be jettisoned.

Fortunately, many matrons of important institutions now belong to this category, and they are doing much to bring hospital training into line with other forms of training; but their efforts are often hampered by the conservative attitude of valued members of their senior staffs. Ward sisters, especially those who have given their lives to hospital service without seeking administrative promotion, may be intolerant of attempts to induce them to allow to others a discipline less severe than that which they willingly impose on themselves. Their conception of vocation is high and rigid, and their attitude to the probationer is biased by their anxiety to preserve for the service of the hospital the whole of her available strength, vitality, and self-minded interest.

CRITICISM FROM WITHIN.

We have been fortunate in obtaining evidence on the training conditions in hospital from women who have reached high positions in the nursing world, after having previously trained for other professions. Their comments are illuminating, since they support those which have reached us from women's organisations outside the profession of nursing, such as the National Council of Women, the London and National Society for Women's Service, and the Association of Headmistresses. These comments may be summed up in the conclusion that the shortage of educated candidates is definitely related to the conditions of training offered by the hospitals, which are not even now catering intelligently for the type which they seek to enlist. The reference is not only, or even primarily, to conditions which have an economic basis, such as uncomfortable quarters or indifferent food, though reports of such conditions have a deterrent effect far beyond the range of the particular hospital guilty of such short-sighted negligence. The anomalies which especially worry the most desirable young nurse and her friends may coexist with a luxurious Nurses' Home and an excellent dietary.

RESPONSIBILITY WITHOUT TRUST.

The most noticeable of these anomalies, and one which really includes all the rest, is the contrast between the degree of responsibility assigned to the probationer in the wards and the degree of confidence reposed in her in the Nurses' Home. While still a student she may be left at night in sole charge of a ward of sick people, or be detailed to wash, tend, and report on the changing condition of a critically ill patient. Though she is given such serious and responsible duties, the amount of discretion allowed her in the conduct of her personal affairs, that is, in the organisation of that part of the 24 hours when she is not on duty, is very small. For example, she is usually obliged to attend all the principal meals, even when they are adjacent to off-duty hours. She must be in her room at 10 P.M. and her lights must be out at 10.30 P.M. She may not, as a rule, leave the hospital between 8 P.M., when she comes off duty, and bedtime, except by special permission. The reasons generally given for such restrictions are that the matron is responsible to the probationer's parents for seeing that she gets sufficient rest and food, and that her evenings are devoted to study. This degree of supervision was doubtless welcomed by parents when it corresponded closely with that exercised in middle-class homes; but we have ample evidence that it can no longer be held to reflect their wishes.

In any case, the fact that in most hospitals the same regulations are applied even to nurses no longer in training suggests that considerations other than a responsibility for the young beginner are involved. It is not disputed by anyone that in view of the long span of the nurse's working day, and of the arduous nature of her duties, she must, if breakdown is to be avoided, lead a life more regular and austere than need be adopted by those doing other work. The change in outlook that hospital authorities have not yet recognised is that the modern girl does not admit the propriety of any attempt to ensure her efficiency as an employee by regulation of her private life. If she cares to miss an occasional meal, or to spend her evenings at her home or at some entertainment, or to read late, it is her own business; if she is unpunctual at her work, or slack in the performance of her duties, her employers have an easy remedy in a threat of dismissal. But it is for her, she holds, and not for them to regulate her life in accordance with the work she has undertaken, and the assumption that she needs protective supervision she finds quite unacceptable.

THE TRADITIONAL OUTLOOK AND THE MODERN OUTLOOK.

It is clear that basic differences between the traditional and the modern outlook on women's work and aspirations have here to be recognised and reconciled. It has been suggested to us that differentiation between the regulations applying to trained and to untrained staff in hospitals might provide a useful, though possibly only a temporary, bridge between the two outlooks. If the prospect of escaping from a protective environment after State registration encouraged educated girls to enter hospitals, the emancipation of probationers would follow. At present the fear that they will be treated as children deters well-educated girls from taking up nursing. But until a better type of candidate presents herself, it is not surprising that the hospitals should continue to treat probationers as children, since many of them have not been trained to self-government before entering hospital. When after three years this training is completed, however, and the nurse is deemed fit to be sent out into the world as a State-registered nurse, she should also be fit to be trusted to regulate her own life in hospital outside working hours. Action which indicated acceptance of this point of view might do more, perhaps, than any other single step to re-establish confidence between women within and without the hospitals, and might serve to secure the coöperation of all sections of the community in attempts to restore nursing to its former position in the esteem of educated women.

(To be continued.)

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

VACCINATION IN VIENNA.

IN this country vaccination against small-pox is not strictly compulsory, but indirect coercion is exercised by regulations which stipulate that eligibility for certain appointments or situations, admission to all kinds of higher schools or institutions, to official posts, and to public offices, and even the award of prizes is dependent on production of a certificate of successful vaccination. When there is an epidemic of small-pox revaccination and primary vaccination may be enforced by an "ambulant vaccination officer" (Public Health Act of 1840). In a publication by the Vienna Board of Health, covering the last ten years (1919–1929) some interesting figures are given relating to first vaccinations and vaccination in schools. In 1919, 42,197 persons were reported

by the medical practitioners and by the public vaccinators as having applied for vaccination. Of these, 9165 were vaccinated for the first time, and 17,544 were school-children. The figures for the following years are as follows:—

Year.	Total vaccinated.	First vaccinations, including school-children.	Vaccination of school-children, including revaccination.
1920 ..	38,691	8,993	18,329
1921 ..	41,890	8,291	28,681
1923 ..	44,483	10,240	28,293
1924 ..	38,836	10,569	22,668
1925 ..	28,110	11,103	20,293
1926 ..	28,079	14,960	25,712
1927 ..	33,304	15,110	24,548
1929 ..	44,113	17,958	28,114

The figures for the years 1922 and 1928 are not included in this compilation, for they require confirmation. But it is quite clear that during the last few years almost the entire population of this city may be regarded as being under the effect of prophylactic vaccination. The result is that for some four years there has not been a single case of small-pox in Vienna.

THE TITLE OF SPECIALIST.

In a report presented to the Vienna Aerztekammer (medical board), Dr. Sonnenfeld discusses the present state of regulations concerning the title of "Facharzt" or specialist. It is perhaps surprising that at present there is no legal definition. Any medical man may call himself a specialist in any particular branch of medicine or surgery he chooses. Only, if he wants to take part in contract practice, as arranged between the sick-clubs and the representative board of the medical profession (Wirthschaftliche Organisation der Aerzte), he must comply with the regulations and submit to the restrictions arranged between these two parties. A would-be specialist must show proof that he has studied for at least four years, after graduation as M.D., in an institution or clinic devoted solely to his specialty. Then he must become a member of one of the 14 groups of specialists dealing with surgery, dermatology, gynæcology (including obstetrics), internal medicine, respiratory disease, neurology and psychiatry, ophthalmology, orthopædics, oto-rhino-laryngology, pædiatrics, physicotherapeutics, röntgenology, urology, and medical laboratory work. For the surgical branches, the applicant should show evidence of post-graduate study for not less than five years, and he must satisfy the board that he has been working quite independently —i.e., as fully qualified assistant or locum tenent in the special wards or departments. This holds good for Vienna. In the provinces the applicant for the title of specialist must satisfy the official medical board of his specialist studies, if he wishes to take part in contract practice. Otherwise he is bound in no way to any consent on the part of medical corporations or bodies. In Vienna, the specialist may only practise in one of the 14 above-mentioned groups; in the provinces he may combine two or more groups. But, I repeat, this is only a private arrangement between the two organisations. Even in Vienna a man restricting himself to private practice may combine whatever specialties he wishes. The public, however, is so used to regarding only the properly qualified man as Facharzt that in practice the regulations sketched above are valid for all specialists, for there are hardly any medical men practising who do not, in one way or other, come under the scope of the contract arrangement mentioned before. Only for one group of specialists do we provide legal protection—namely, dental surgeons. The title of Zahnarzt may be used only by a duly qualified medical man, who, after having taken his M.D. degree, has worked for two years in the dental clinic and restricts his practice to the diseases of the teeth and mouth arising from dental troubles. At present there are in Vienna about 1200 specialists and 600 dental surgeons, out of a total of about 3600 practitioners.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

BURIAL OF THE APPARENTLY DEAD.

A YEAR ago the Chamber of Deputies asked the Government to take the advice of the Academies of Medicine and Sciences in connexion with a reliable test of death, whose use would reduce to a minimum the number of premature burials. A commission of experts was appointed to deal with this matter, and on Feb. 2nd their report was presented to the Academy of Medicine. In the opinion of the members the risks of burial alive have been exaggerated, but in times of stress, war, epidemics, and the like, mistakes have been made, and whether the public's fear of premature burial be justified or not, the fact remains that this fear exists. Everything possible should therefore be done to remove not only the danger itself, but also the fear of it. The cases of mistaken death include those of hysterical lethargy in which general paralysis and anæsthesia are associated with retention of sensory perceptions. As circulation and respiration continue, the trained medical observer should not go astray. In other cases, under the influence of nervous shock, a condition arises similar to that of hibernating animals. This condition may end in death if energetic measures are not taken, and as it has been drily remarked, it is less important to make the diagnosis of death in such cases than to consider the prognosis and act accordingly. Syncope, again, is a condition in which a mistaken diagnosis of death may prove fatal, whether the patients have been hanged, drowned, gassed by carbon monoxide, poisoned by chloroform, or electrocuted. In the last-named state, syncope has been known to last for more than two hours. After describing the various tests and signs of death, and noting that little is yet known of Icard's test (intravenous injection of fluorescein, which discolours the conjunctivæ if blood is still circulating in the body) in connexion with the syncope of electrocution, the commission concludes that, after all, the most reliable sign of death is bleeding from a severed radial artery. The three main recommendations of the commission are (1) to wait at least 24 hours after death before burial, (2) not to bury anyone without a medical examination of the defunct, and (3) to put this medical examination, at any rate in the large towns, in the charge of doctors who have mastered the technique of the modern scientific tests of death. The commission envisages a system, according to which every person who is supposed to have died will be carefully examined for signs of respiration, circulation, &c., and the first manifestations of putrefaction, the doctor returning several hours later if he is in the slightest doubt.

HOMŒOPATH AND ALLOPATH.

The already lively pages of the *Siècle Médical* have recently been given an additional attraction by a homœopath-allopath correspondence conducted in the

best gladiatorial spirit. The esteem in which one side is held by the other can, perhaps, be measured in less vivid terms than was the case only a few generations ago; but there still remains a strong tendency to score debating points rather than more solid advantages. This correspondence might, in fact, have ended in the usual stalemate, had not a practical suggestion been made by a doctor holding a hospital appointment. Dr. Weismann-Netter, of the Saint-Antoine Hospital, has invited his homœopath colleagues to treat patients in his hospital, his only stipulation being that the guests contribute the same good faith to the proposed tests that the host himself guarantees. In this way he hopes to test such homœopathic claims as that Jenner's vaccine, given by the mouth in homœopathic doses, confers specific immunity on the person concerned; and that a Wassermann reaction which has hitherto persisted in being positive, becomes negative on the administration of the homœopathic "syphilinum." Assuredly this invitation is bona fide. Will it be accepted? A year or two hence we may, perhaps, have some interesting results to report.

UNITED STATES OF AMERICA.

(FROM AN OCCASIONAL CORRESPONDENT.)

SCHOOL VENTILATION.

THE publication of the final report of the New York Commission on Ventilation [1] is an event of significance partly because of the great amount of research which lies behind it and partly because of the strenuous protests that the earlier conclusions of the distinguished committee have aroused. Ventilating engineers have loudly demanded definite specifications for construction. The committee has throughout preferred to stress desirable conditions of temperature, humidity, and air movement. In an earlier report they had, however, concluded that "window gravity ventilation is definitely superior to plenum ventilation." This conclusion, all the more startling since several of the States had written "plenum" into their school building codes, raised a storm of indignation among the engineers and is now definitely withdrawn. "Desirable air conditions," the present report states, "may be obtained . . . (*a*) by plenum ventilation; (*b*) by local unit ventilation; (*c*) by window gravity ventilation."

The commission recommends a model law as follows:

1. The major objectives of schoolroom ventilation shall be the elimination of heat from the body surface without the production of objectionable draughts. This means the maintainance of a room temperature of 65° F. in corridors, gymnasiums, and shops; of 75° F. in swimming pools and adjacent dressing rooms; and of 68° F. in all other occupied rooms.

2. The avoidance of overheating is of primary importance for the promotion of comfort and efficiency, and the maintenance of resistance against disease. Sources of direct radiation, therefore, shall be so designed or protected as to prevent overheating of persons in adjacent seats.

3. All classrooms shall have at least 15 square feet of floor space and 200 cubic feet of air space per pupil, and shall have a system of heating and ventilation which shall provide means of air supply and exhaust capable of avoiding unpleasant odours, and of avoiding, without chilling draughts, an increase of room temperature above 68° F.

4. Such ventilation shall be accomplished by any means which will attain satisfactorily these specified results. For the average school, favourably located, window gravity (open window) ventilation seems to be the method of choice on grounds of comfort and economy.

5. Every schoolroom used for instruction, study, assembly, and physical recreation shall be provided with at least one thermometer of a grade that will give a reading accurate to within one degree F. The thermometer should be so located as to give a representative reading of temperature at the breathing plane of the pupils.

Engineers would be required to submit for approval by either the State Board of Education or the State Board of Health plans which in their judgment would provide the above conditions. Such an arrangement, the commission points out, is on all fours with present regulations governing water-supply and waste disposal.

This 1931 report should be read as an addendum to the exhaustive report published in 1923.

FEDERAL GRANTS IN AID OF HEALTH WORK.

The old battle concerning Federal subsidy to the States for health which ended in 1929 with the lapsing of the Sheppard-Towner Maternity and Infancy Act of 1921 is about to be resumed in Congress. Three Bills have been introduced which substantially renew the conditions of the former Act, but add thereto provisions for subsidies in aid of schemes for rural public health work which must be approved by a "Federal Health Coördinating Board." In the lobby for these Bills will be the powerful organisations of the women voters as well as the State health authorities. In the opposite lobby is found the medical profession, or at least its articulate representatives, with many arguments [2] inspired by the fear of that monster "State medicine" before the thought of which almost all American physicians still recoil in horror. The main chance of defeating the Bills lies in the present need for national economy. H.R. 7525, introduced by Representative Bankhead of Alabama, having been recommended in committee, is already on the calendar of the House of Representatives. It calls for appropriations increasing from two and a quarter million dollars in the present year to four and a quarter million dollars in 1937 and subsequent years. This is a small sum in comparison with demands made by other Bills for unemployment relief and naval replacements, and yet the President's appeal for stringent economy will have to be considered.

As regards the success of the old Sheppard-Towner Act, Miss Grace Abbott, chief of the Children's Bureau, states that "no State department of health developed what could be called a maternal hygiene programme until after the passage of the Maternity and Infancy Act in November, 1921. At the time when the benefits of the Act came to an end on June 30th, 1929, every State except Vermont had such a division or bureau functioning in the field of maternal and child hygiene and the Department of Health of Vermont . . . had inaugurated an educational programme in maternal and child care." In contrast to this statement place that found in the editorial above mentioned, "A considerable number of states did not appropriate for maternal hygiene up to their full financial ability until after the repeal of the Sheppard-Towner Act. Apparently federal aid has a deadening effect on State initiative!" Miss Abbott gives in detail statistics for the registration states of 1921 showing a decline in infant mortality from 75·0 in 1921 to 65·7 in 1929, and of maternal mortality from 67·3 (per 10,000 live births) in 1921 to 63·7 in 1929. The editorial in the Journal of the American Medical Association, though it gives no statistics, states that the operation of the Act "did not accelerate the rate of decline in either the maternal or the infant death-rates by even a fraction of a point per annum." And so the battle is waged.

[1] School Ventilation: Principles and Practices. Pub. Bureau of Publications, Teachers' College, Columbia University, N.Y.C. 1931. Pp. 67. $1.

[2] See editorial, Jour. Amer. Med. Assoc., Jan. 30th, p. 404.

PANEL AND CONTRACT PRACTICE

Partners and Assistants.

NEWLY qualified men entering general practice should be aware of differences in the regulations under the Insurance Act for partners and assistants. For instance, whereas two partners may have a total of 5000 patients on their list, and one of them may have 3000 patients, a principal and assistant may only have 4000 patients. A partner to be recognised as such must receive at least one-third of the share of any other partner; when so recognised he can deputise for any other partner without the patient being able to demand the personal services of his own doctor. This is not so with an assistant. Here the patient can demand the personal service of the principal, which if available he must give, unless he has a reasonable explanation for his omission. In either case continuity of treatment must be provided. Again the principal must obtain the consent of the insurance committee for the employment of an assistant, but not to take in a partner. This consent which is only given from year to year cannot as the phrase runs "be unreasonably withheld"; if withheld the insurance committee must consult the panel committee, and in the event of disagreement the principal has the right of appeal to the Minister. Permission would not be given to employ more than one assistant without the consent of the Ministry.

THE PRINCIPAL'S RESPONSIBILITY.

For all the acts of his assistant the principal is responsible, and the insurance committee requires the assistant to join the panel list, so that he can be dealt with if necessary under the disciplinary machinery; but this does not prevent the principal from entering into an agreement of the usual restrictive type dealing with notice, payment, and the question of accepting insured persons on the list in his own name. Since an assistant may leave, depending upon the agreement (if any), at a week's, or a month's, or possibly a quarter's notice, has no capital in the practice, and usually receives a fixed salary, it is unusual for a principal to allow, or for an insurance committee to encourage, an assistant to accept names of patients on his own list, even if, under his agreement with his principal, he has to make arrangements for them to change upon his leaving the practice. In this event, each patient would have to receive a notice from the insurance committee instructing him that Dr. A. was leaving, and that if he desired to change to another doctor he would have one month in which to do so; whereas, if all patients are accepted in the principal's name, no notice of change would have been required at all. Against this is the personal service difficulty. If all patients are on the list of the principal he is held responsible for personal service, and if it is found on an inspection of the prescriptions issued by the practice that only (say) 10 per cent. of these prescriptions are signed by the principal, and 90 per cent. by the assistant, the insurance committee might maintain that the principal is not giving his patients the personal service to which they are entitled. The case being brought before the medical service subcommittee, this argument may be used for refusing permission to employ an assistant when the application next arises.

WHAT IS FARMING-OUT?

It is suggested this is farming-out of practice. No one would defend the real farmer-out of practices to young medical men, in which the younger man does all the work and the principal takes the bulk of the income; especially when as too often happens the junior, misled by promises, finds himself embarrassed later by heavy annual payments for the purchase of a practice of his own making. In such bargains the payment for rent and goodwill are apt far to exceed the normal. Farming-out, moreover, is not likely to occur with one assistant and cases in which more than one assistant is employed are rare. Judging from decisions of the Ministry, the practice of allowing the assistant to do the bulk of the contract work of a practice is not now held to constitute farming-out. The assistant gains experience under the supervision of an experienced man, who is responsible for all his errors and has to make certain of continuity in treatment. Many newly qualified assistants, it is true, are more efficient in the diagnosis and treatment of disease than the principals who employ them, but they have not had experience of the general problems of practice.

INTERPRETATION OF "PERSONAL SERVICE."

These considerations are relevant to a case recently before the London Insurance Committee in which an elderly practitioner, carrying on the practice of a deceased friend until that friend's son and daughter should have qualified, acted as principal in the practice, almost gratuitously, but with the help of a very able assistant paid by fixed salary. The elderly practitioner has been refused permission to continue to employ an assistant on the ground that examination of the prescriptions issued shows him to be attending to only a very small amount of the panel work. Meanwhile the assistant is doing the bulk of this work admittedly to the satisfaction of the patients who always ask for him. And there have been no complaints. The case has been referred by the insurance committee to the panel committee for consultation, and should they disagree the Minister will presumably be asked to decide.

Pitfalls of Practice.

A SAMPLE OF COMPLAINTS.

A recent report of the medical service subcommittee for London gives an account of some more [1] of the pitfalls into which insurance practitioners are apt to fall, sometimes through inadvertence, sometimes through want of care, and the kind of action taken by the insurance committee, through its statutory subcommittee, in dealing with complaints.

CERTIFICATION.

An approved society complained of wrongful certification under the following circumstances. A young man was taken ill with rheumatic fever, seen and examined by his doctor and told to go to bed for three months. Regulations require in such a case that an official certificate should be given each week on any day between one Sunday and the next, but to be given on the day the doctor saw the patient or within twenty-four hours. The society and the boy's relations said the doctor did not call to see the boy or to give certificates which were fetched from the surgery. The doctor said he did call. A regional medical officer had been called to see the boy in consultation with the panel doctor who, in front of the regional officer, asked the mother and the

[1] See THE LANCET, 1931, ii., 87.

boy if he had been attended weekly by the doctor; they replied that he had been seen weekly and that they had no complaint to make. The regional officer gave this unprejudiced evidence before the committee and the charge of wrongful certification was held not to be established.

An approved society complained that a National Health official certificate had been filled up incorrectly. The principal's assistant attended the patient's confinement on August 16th, and he issued an intermediate certificate on August 19th, giving the cause of incapacity as pregnancy. The doctor said this was written by mistake for puerperium. The giving of any intermediate certificate was incorrect apart from the clerical error. Sickness benefit ceases on confinement and the patient by her certificate of confinement becomes automatically entitled to four weeks maternity benefit and only after that time does sickness benefit begin again by the issue of a first certificate if the patient is still considered incapable of work. This doctor did not use the argument that as pregnancy was the cause of the confinement it was a correct term to use. Pregnancy is, however, a very well-known condition to lay people and it can hardly be correct to say that a woman is pregnant one week after her confinement. The matter is important to approved societies, for it may enable a patient to get sickness and maternity benefit at the same time unless great care is exercised in the supervision of certificates. The doctor was found guilty of a breach of the certification rules and was warned.

A patient visiting London consulted an insurance practitioner but did not claim treatment as an insured person. During the course of this treatment the doctor issued two National Health Insurance certificates, and at the end he submitted a private account, whereas official certificates must not be issued to patients who are being treated privately. The doctor agreed to withdraw the account and the committee accepted the statement that he had acted in good faith.

RECORDS.

Insurance practitioners are required under the terms of service to keep accurate records of work done on behalf of panel patients by entering details with clinical notes on the particular envelope (FMR), that belongs to each patient. Special payment for this clerical work was granted and included in the present capitation fee. This work is important in that proper notes help the doctor in the treatment of the case and are helpful to the next doctor attending should the patient move to another area. Moreover these entries provide statistics on which negotiations take place for the capitation fee. If no entries are made on these envelopes it appears that less work is being done than is really the case and it supports the argument that doctors are being overpaid for the work they do. An insurance practitioner was visited by a regional medical officer twice. On the first occasion there was no entry on 100 medical record envelopes (FMR); he was warned, and revisited some few months later when 549 cards had no entry from the period Feb. 15th to August 14th, 1931. The visitor asked the doctor to appear before his officers or write to say what explanation he had to offer but he did not write or appear. The sum of £5 was deducted from his next cheque.

AN ALLEGATION OF NEGLECT.

This case illustrates the necessity of straightforward dealing by a patient with his doctor or by the relatives when a doctor is attending. The mother of the deceased patient—a boy—failed to inform the doctor, when he called, either that a nurse had been called in to see the boy or that she had taken the boy's temperature and found it to be 104° F. The mother brought a charge of neglecting treatment in this case and she made allegations of drunkenness also against the doctor. The boy was sent to hospital by another doctor where he died from pneumonia. The mother's evidence was found to be unreliable in the matter of medicines, for she said only one bottle was given whereas the prescriptions which were dispensed showed he had had three bottles. The doctor was given the benefit of the doubt largely on the unreliability of the mother's evidence, but although the committee were satisfied that he was never in an intoxicated condition, a bad impression was created when it was admitted that he walked into the house and even into the bedroom smoking and he was advised when attending an ill patient, who (he said) was alone, to write down instructions that he wished carried out and not to leave it to the patient to remember to give to relatives when they returned.

CHARGING A FEE.

A mistress asked a doctor to see her maid and at the end of the consultation the maid handed her medical card to the doctor indicating thus that she was an insured person and therefore entitled to free treatment. Nevertheless the doctor charged 5*s*. He explained that he had given the consultation before the card was handed to him and that as the mistress had asked for the consultation she would pay the fee. Regulations provide that patients who (1) say they are insured or (2) who present a medical card (which is not signed by a doctor living within two miles) cannot be charged unless at the same time an official receipt is given which when forwarded to the insurance committee within 14 days enables them to obtain a refund if the insurance committee are satisfied they are entitled to free treatment. No receipt was tendered in this case. The medical service subcommittee is apt to deal severely with fee-snatching; but in this case it was satisfied that the doctor acted under a genuine misapprehension and he was only warned that it must not occur again.

SIZE OF PANEL.

Single-handed doctors are not permitted to be paid for more than 2500 panel patients. To receive payment for numbers over 2500, a doctor must employ a whole-time assistant and obtain the consent of the insurance committee. This doctor, having more than 2500 patients, with the consent of the committee engaged a whole-time assistant. The assistant subsequently left his service and the doctor was without an assistant from June 1st to Sept. 30th. He was only paid for 2500 patients for the quarter July to September and the committee decided to deduct £5 from his remuneration, representing the excess over 2500 for whom he had been paid for the month of June.

HOSPITAL COSTS.—In the last year of the guardians control the cost of the general hospital at Newcastle-on-Tyne was £43,258; the cost for the year ending March 31st, the first under civic control, is estimated at £52,700, which includes £6900 for special items mainly connected with the change-over. For the year ending March 31st, 1930, the medical staff numbered 10 (5 part time and 5 full time), for the current year the number is 18 (10 part time and 8 full time). The salaries have increased from £1789 to £3810. The average number of patients was 520 in 1930, and 526 for the current year. Last year Malmesbury cottage hospital admitted 370 patients, the weekly cost of whose maintenance averaged £2 10*s*., against £2 13*s*. 6*d*. in the previous year. At the Clayton Hospital, Wakefield, the average weekly cost (1969 patients) was £2 8*s*. 4*d*.

CORRESPONDENCE

ARTERIAL ATONY AND ARTERIO-SCLEROSIS.

To the Editor of THE LANCET.

SIR,—I cannot claim the authority to express an opinion upon the general argument embodied in Prof. Plesch's article in your current issue, but I cannot allow to pass unchallenged his assertions that athletes show marked calcification by the age of 35 or 40; that they are seldom capable of great physical effort when they attain middle life; and that most of them die before 50. In your annotation, "Another View of Arterio-sclerosis," you express the opinion that there may be many who will disagree with these assertions. I shall be surprised to find any who will agree with them. In a desire to reconcile contradictory opinions you suggest that Prof. Plesch may be referring to those who give their whole time to athletics and not to those who take part in sport merely as a recreation. I do not find it easy to picture precisely what is meant by the category of "whole-timers" unless it is an attempt to separate the amateur from the professional, a distinction which for several reasons is of no value.

Before dealing with Prof. Plesch's own assertions, I must refer to your statement that it is pretty generally agreed that exercise raises the blood pressure, in particular the systolic, considerably. This is perfectly true, but there is no support for your subsequent statement that the systolic pressure remains high for a considerable time after the exercise is finished and slowly returns to normal. On the contrary, the fall in blood pressure on the cessation of exercise is comparatively abrupt; and a return to the resting state (or a little lower) is to be expected in from one to four minutes. Possibly the proverbially low pressure of the athlete is what Prof. Plesch refers to as "the severe relaxation which follows all heavy bodily exertions," though it is strange to hear such a desirable condition invested with pathological significance.

In 1873 Morgan undertook a laborious investigation into the life-histories of all who had rowed in the Inter-University Boat Race between the years 1829–1869. In 1904 Meylan studied similarly the Harvard oarsmen who had rowed between 1852 and 1892. Their results were in close correspondence and showed a life expectation of nearly five years longer than that of the selected risks of insurance tables. They found, moreover, no evidence of impaired efficiency in regard to mental or physical activity and clearly they were dealing with a form of exertion which is universally accepted as the most exacting to which the human frame can be subjected.

The greatest long-distance runner in the world at the present day is well over 50 years of age. The holder of the 40 miles record established 49 years ago is an octogenarian who competed in races until he was 60, and made a practice until only a few years ago of running a mile on his birthday. Sexagenarians and septuagenarians could be enumerated literally in scores who, in their youth, were prominent performers in every branch of sport, and whose present condition for their age it would be impossible to surpass. As you submit in your annotation, arterio-sclerosis is an obscure condition and any thoughtful work on it is therefore welcome. But if the value of Prof. Plesch's paper depends upon the accuracy of his statements which refer to the influence of exercise, I do not think it will be a reliable contribution.

I am, Sir, yours faithfully,

Brook-street, W., Feb. 22nd. ADOLPHE ABRAHAMS.

BLOOD GROUPING OF MONGOLIAN IMBECILES.

To the Editor of THE LANCET.

SIR,—Dr. L. S. Penrose has contributed to your issue of Feb. 20th some interesting information about blood grouping among Mongolian imbeciles. I cannot, however, forbear pointing out, in the interests of scientific truth, what I believe to be a fallacy in his argument.

Dr. Penrose appears to me to have assumed that some linkage exists between the Mendelian characters giving rise to the blood group reactions and those characters, whatever they may be, which are responsible for Mongolian appearance. No one, as far as I am aware, has ever supposed that such a linkage exists, the variation in the incidence of the A and B factors in different races being presumed to depend upon the racial ingredients from which the race, as we now know it, was originally derived. If the sporadic appearance of Mongol characters in imbeciles among white races is really due to the admixture of Mongol stock, this admixture of factors, usually latent, must have taken place in the distant past, and the racial characters must be as thoroughly "mixed in" as the blood group factors. Unless there is a linkage between Mongol characters and the B factor, there could now be no relation between them, and the "Mongol theory" would be neither supported nor refuted by the incidence of blood groups. As far as is known parents both belonging to Group O are as likely as any others to produce a Mongolian imbecile, although this imbecile could not conceivably contain the B factor.

Dr. Penrose's observations are of some intrinsic interest, but they appear to me to be in fact totally irrelevant to the theories of the origins of these imbeciles which he is considering.

I am, Sir, yours faithfully,

GEOFFREY KEYNES.

Park-square West, N.W., Feb. 22nd, 1932.

To the Editor of THE LANCET.

SIR,—Dr. Penrose, in your last issue, makes some references to myself and my book ("The Mongol in our Midst," 1931) in terms which are perhaps necessary for sustention of the thesis that I am in the wrong, but which do not seem to me, at first blush, to be related very closely to what I have said. May I therefore try to express clearly what are my views, as set out in the book in question?

But, may I first enter a protest against the continued use of the ugly expression "Mongolian imbeciles"? This, if it means anything at all, means Mongolian persons who are imbecile. The use of it, in our literature, for persons who are never Mongolian, and not always imbecile, gives offence: (1) to Japanese and Chinese ladies and gentlemen; and (2) to some English parents of the children who are neither Mongolian nor imbecile.

Surely it is much better to speak of the children and adults we have in mind, as *mongoloids*, indicating marked mental defect, if need be, by the prefixation of the word imbecile? We then have: (1) mongoloids; and (2) imbecile mongoloids. (I can think of no objection to this terminology except that I have suggested it; I have often considered the advisability, in the general interest, of ascribing its invention to someone else.)

(1) The first statement made by Dr. Penrose to

which I would refer is this: that Langdon-Down suggested the likeness between the imbecile mongoloids (as I call them) and "members of the Mongolian race" (sic) "might be due to admixture of Mongolian blood amongst Europeans." For this statement no justification is known to me. Dr. Penrose's whole case against Langdon-Down falls to the ground.

(2) Dr. Penrose then says that I have "endeavoured to follow up this idea, supporting" my "contention by bringing forward many resemblances or 'homologies' which (I believe) are common to racial Mongolians and this class of imbecile."

I am not quite sure what contention I am thought to have endeavoured to follow up, but in my preface—and elsewhere—I have made it clear (at the expense of repetition for which I have been severely blamed) that all I have consciously tried to do is to demonstrate how, if my observations on the resemblances (which I quite rightly call homologies) are correct, then, *accepting certain Darwinian premises, we are logically forced to a polyphyletic theory of human origins* which affords us a coherent and consistent explanation of "mongolism." But, in this I am not *following*, I am opposing, Langdon-Down. He found, in his observations, *proof* of the unity of the human race; I find, in the polyphyletic theory, an *explanation* of his observations as confirmed and extended by me.

(3) Dr. Penrose goes on to say that "owing to Landsteiner's discovery of the four blood groups" . . . "a simple test can be applied to the theories of Langdon-Down and Crookshank."

Before agreeing that a simple test can be applied to any theory of my own, I would much like to know in respect of which the test is to be applied. My propositions are set out categorically in Part IV., Chapter II., of my book, and I cannot find among them one which is invalidated by anything shown by Dr. Penrose. To which of them is the "simple test" applicable? Moreover, I can find nothing in my remarks on the blood-grouping problems (on pages 276, 277, 278) that is inconsistent with any of Dr. Penrose's observations.

(4) Dr. Penrose gives, as his latest reference to Snyder's work, the paper in the *American Journal of Physical Anthropology* for 1926. This is a good paper, but research, to be up to date, should pay attention to Snyder's *book*, published in 1929, and referred to by me. Moreover, reference should be made to Prof. Haldane's lecture at the Royal Institution, on Feb. 20th, 1931, in which he says that the study of blood transfusion has proved that "all the peoples of the world" are divided into four blood groups, and that it now seems very probable *that humanity began in four different places.* In other words, Prof. Haldane finds that the study of blood-groups leads him to accept my proposition, that, *on the Darwinian premises, we are forced to a polyphyletic theory of human origins.* When I put this notion forward 20 years ago, I was laughed at, openly. To-day, I am happy to accept the work of the hæmatologists, so far as it goes, as confirming this proposition to which I have consistently adhered.

(5) Dr. Penrose says, however, that "an hypothesis was put forward by Crookshank that Mongolian imbeciles were related in some way to orang-utan monkeys." In saying this, Dr. Penrose is "arguing" much as Wilberforce did with Huxley, on a celebrated occasion. (According to Darwin and Huxley, both Dr. Penrose and myself are "related" to all sorts of monkeys, and even to amœbæ!) But Dr. Penrose writes as if I suggested "Mongolian imbeciles" to be a special breed of human or semi-human beings, isolated (like the Chillingham cattle) from their kin, and the offspring of really shocking affairs with "orang-utan monkeys." What I do suggest is that we get a good "explanation" of the phenomena of "mongolism" if we regard the *imbecile* mongoloids as expressing conflict between parental ancestral strains, the *non*-imbecile mongoloids being, not so much the result of conflict, as of harmony, between certain ancestral strains, united, or segregating out, in the parents ("The Mongol in our Midst," pp. 412, 440, et al). And, very happily for myself, this kind of conclusion has received confirmation from the work of Mjoen and others. This work shows us how in Scandinavia, where crossings still occur between "Nordics" and Lapps, sometimes one racial influence may be prepotent, sometimes a homogeneous blend may occur, sometimes some characters of each (race) may be present, and sometimes "each organ may be a kind of mosaic." More simply: when there is a double ancestral strain, sometimes a fairly high type with predominance of one influence, and sometimes degeneration and mental defect may occur. This is exactly what I have postulated in "explanation" of the phenomena of mongolism in Europe: if, that is, we accept the polyphyletic hypothesis.

(6) Now, what we really need to know is: how do the blood characters segregate out, in these circumstances? We want to know what are the blood group characters of the different types of Nordic-Lapponic crossings before we can say that anyone's results are "quite inconsistent with the theories of Langdon-Down and Crookshank." It is precisely because I wished to avoid any a priori conclusions, such as Dr. Penrose has made, that I wrote as carefully as I did concerning the blood grouping problem, on pp. 276–8 of my book.

(7) Finally, may I observe that Dr. Penrose is unfortunate in putting the statement that, in "European countries" A is much more common than B, in antithesis to the dictum that the incidence of B is high in Mongolian races. For Snyder finds a "Hunan" type, "with an exceptionally high frequency of A and a low frequency of B," in Korea, Japan, Southern China, and also *amongst Hungarians, Poles, Ukrainians, and Egyptians, suggesting the possibility of Mongolian relationships in the ancestry of these peoples.* In other words, the results given by Dr. Penrose suggest for the "Mongolian imbeciles" exactly what Snyder finds possible, and anthropologists admit, for many Central and Eastern Europeans?

(8) And there, I think, the hæmatological question must be left at present. I am not concerned to stress the importance of the blood groupings either way: too much still awaits examination. But I do think that those who are inclined to differ from me, on a priori grounds, should do me the compliment of finding out what it is I mean, or, at any rate, of accepting my word for it when I say what I mean.

Dr. Penrose's work does not invalidate or controvert a single statement that I have made, so far as I can see. If I am wrong, I will be happy to acknowledge my error, for, once more, I have tried to prove nothing but this: that, accepting certain observations, then, on the Darwinian hypothesis, we are forced to a polyphyletic theory of human origins, and have a consistent and coherent "explanation" of the occurrence of mongoloids among us.

But I wish some statistician would tell me what, according to Poisson's ratio, is the probability of error when, by means of a hundred or two blood examinations, a *petitio principii*, and some a priori

reasoning, a "simple test" is applied to considerations concerning descent through hundreds of thousands of years and thousands of millions of Mongolians and "orang-utan monkeys." Cannot we look at things *sub specie æternitatis?* If we did, we should save ourselves much trouble, and all be as good friends as I am sure Dr. Penrose and I want to be.

I am, Sir, yours faithfully,

Wimpole-st, W., Feb. 19th, 1932. F. G. CROOKSHANK.

METEOROLOGICAL FACTORS AND HEALTH.

To the Editor of THE LANCET.

SIR,—In his interesting letter in your issue of Feb. 13th (p. 370) Fleet-Surg. W. E. Home claims that there is much more to learn about the influence of weather on health. Concerning the influence of various climates and different localities on sundry diseases we possess a wealth of literature, and much weighty opinion, but no facts worth serious consideration. It should be possible, with a little trouble, to ascertain how a sufficiently large number of cases fare in certain climates as compared with controls elsewhere, but I have seen no serious attempts to make these observations, and the individual instances which may be the source of the obiter dicta of great men are of little value. With State medicine expanded as it is to-day, it should be possible to carry out such work, and perhaps most easily in the domain of tuberculosis.—I am, Sir, yours faithfully,

Paignton, Feb. 18th, 1932. ERNEST WARD.

THE SPAHLINGER REMEDIES.

To the Editor of THE LANCET.

SIR,—The concluding sentence of your editorial in THE LANCET of Feb. 6th, dealing with the Spahlinger remedies, runs as follows: "Mr. Spahlinger may safely join the freemasonry of bacteriologists who share their knowledge for the benefit of medicine and mankind." I read this to mean that you invite Mr. Spahlinger to accept the canons which govern other bacteriologists, and by so doing enjoy the status and the security which such acceptance confers. I find, however, that your words have been construed by some to mean that, in your judgment, Mr. Spahlinger, by such revelation as he has made of the methods by which his tubercle vaccines are made, has already earned for himself this place alongside pioneers in the field of immuno-therapy.

I feel sure that such a construction of the words quoted above was not intended, nor does the general tenor of your remarks suggest it. It will not have escaped your attention that concerning his tubercle *serum*, and the formulæ relating to it, Mr. Spahlinger has said nothing at all. Yet it is this preparation upon which, in the main, he has for the past twenty years based his claim to *cure* tuberculosis. And it is upon this substance that his reputation with a certain section of the public, and with a few of the less critical members of the profession, rests.

Having watched, for several years, Mr. Spahlinger's fruitless efforts to get his remedies accepted and used by British doctors, whilst still insisting that these remedies shall remain of the nature of secret and proprietary medicines, this present development interests me greatly. Your readers at least, however, will not draw inferences from it that are not warranted by the facts. Many honest and generous offers have been made to help Mr. Spahlinger to finance his remedies. Five years ago, when his friends complained that his beneficent work was being starved for lack of funds, the *Daily Express* offered Mr. Spahlinger the handsome sum of £10,000 to further his researches on condition that he would give facilities to a small medical committee to examine his methods and to report upon them. The offer was not accepted.

Since the acceptance into the freemasonry of bacteriologists is, to adopt your own standard, limited to those who share their knowledge for the benefit of medicine and mankind, and since Mr. Spahlinger has not so shared his knowledge, his entry into that brotherhood must be deferred until he has fully complied with this requirement.

I am, Sir, yours faithfully,

THOMAS HORDER.

Harley-street, W., Feb. 15th, 1932.

*** Sir Thomas Horder's reading of our words is correct.—ED. L.

SIZE OF WOMEN'S FEET.

To the Editor of THE LANCET.

SIR,—In a demonstration of genuine period clothes dating from 1780 recently arranged in Bristol, it was found that none of the ladies taking part could put on the shoes corresponding to the earlier costumes, as they were much too small. Is the fact that women's feet were so much smaller 100 years ago well recognised? If it is so, I suppose exercise and a healthier life have been responsible for the change.

I am, Sir, yours faithfully,

J. T. IRVING, M.D., Ph.D.

University of Bristol, Department of Physiology, Feb. 20th, 1932.

THE EARLY TREATMENT OF RHEUMATIC DISEASE.

To the Editor of THE LANCET.

SIR,—Attention is being very properly called to the world-wide suffering caused by rheumatic disease and to the necessity, from a medical point of view, of getting to closer grips with the problems of cause and cure. In this connexion I am writing on behalf of the Committee of the Royal Mineral Water Hospital at Bath, a national institution nearly 200 years old, to point out to the medical profession the necessity of sending patients for treatment in the *early* stages of the disease. If that is done there is hope of a cure, but what so frequently happens is that the patien is sent to us as a last resort, partially or entirely incapacitated, when cure is out of the question, and a certain amount of alleviation is often all that can be done. If however doctors would bear in mind the great good that can be effected in the early stages of the disease and would advise their patients to apply for admission to this hospital as a *first* and not as a *last* resort, very great good would, without question, result (1) to the patients themselves, (2) to the knowledge and treatment of the disease from a medical point of view. I venture to ask you to insert this appeal in the hope that this most important matter may receive the attention it deserves.

I am, Sir, yours faithfully,

GODFREY LIPSCOMB,
President, Royal Mineral Water Hospital, Bath.

Feb. 18th, 1932.

ULCUS TROPICUM.

To the Editor of THE LANCET.

SIR,—I read with great interest Dr. Kerley's paper on this subject in your issue of Jan. 30th (p. 235) and I was impressed with the idea that he is seeking a specific treatment. Reference to a previous communication of mine to THE LANCET (1930, ii., 1220) will surely satisfy him.

I live in a country (Transjordania) where the ulcus tropicum is quite common. Here it is called jericho or jeresh ulcer. No matter how uncertain the ætiology may be, it is undisputed that the condition is found only in hot (tropical and subtropical) countries. Thus it is reasonable to treat it with excessive cold. My experience, as well as the experiences of distinguished dermatologists in Arabia, make me look upon solid carbon dioxide, which has a temperature of 79° C. below zero, as the specific of ulcus tropicum. Moreover, the beneficial effect of the leucocytosis that follows application of the solid gas is undeniable. By a special condensing apparatus, carbon dioxide gas, under pressure from iron cylinders, is condensed within two minutes into solid snow. Cauterising the ulcer for a minute by the solid carbon dioxide thus obtained reduces it to a simple skin ulcer that can be cured within two to three weeks, with a simple antiseptic dressing (e.g., ointments of jellidol, rivanol, or protargol). And if the ulcer is seen early, it heals without leaving a scar. I do not need to cite cases to prove the specificity of the solid gas. What I related in my last communication is quite enough, and I have seen and cured tens of cases since. I like to ascertain that every case is examined microscopically, and is found positive for leishmania parasites.

I do not agree with Dr. Kerley that the condition is "very much more common in men than in women and children." In my experience it is more often seen in women. I have three patients under treatment now and they are all young girls. The reason for the difference is, I think, that women's dress leaves more parts exposed than men's. The general condition, also, is not much to be blamed, for all my patients are healthy and robust.

As to transmission, the mosquitoes are the primary factors in Arabia. Nevertheless, indirect infection by flies canot be ruled out.

I am, Sir, yours faithfully,

Feb. 11th, 1932. D. F. TUTUNJI.

SURGICAL SPIRIT.—In reply to Dr. R. Prosser White, Dr. L. P. Garrod writes to point out that the surgical spirit to which he was alluding is not "alcohol diluted 1 in 5 of water," but industrial alcohol (as generally used for surgical purposes) which contains 5 per cent. methyl alcohol, approximately 95 per cent. ethyl alcohol, and only a trace of water.

PUBLIC HEALTH SERVICES

MENTAL HOSPITAL REPORTS.

THE EAST SUSSEX COUNTY MENTAL HOSPITAL at HELLINGLY had 1279 patients in residence on Jan. 1st, 1931. The recovery-rate for the year was 37·6 per cent. and the death-rate 6·33 per cent. Of those discharged recovered 55 were previously sent out on trial, 25 of them with a money allowance. The general health of the patients was good apart from an attack of influenza, a small outbreak of measles, and a slight epidemic of diarrhœa. The commonest causes of death were pneumonia and chronic nephritis; there were only six deaths from tuberculosis. The malarial treatment of general paralysis has been continued; two female patients failed to develop malaria and of the remaining 16 cases two were discharged recovered and two were improved. One female patient benefited considerably from intrathecal injections of neosalvarsanised serum. Of a number of cases of dementia præcox treated with intramuscular sulphosin, 25 per cent. were discharged recovered. These two forms of therapy naturally throw considerable work on the laboratory, which has also found time to investigate acidosis, liver function, and renal functions in mental disease and to do a considerable amount of work for local authorities. Special efforts were made during the year to develop occupational therapy, and marked mental improvement has been noted. The visiting surgeon performed four major operations during the year, the ophthalmic surgeon saw 283 patients, and the dental surgeon visited weekly. Nine men had full parole, and 63 men and 132 women had parole within the estate. Three wards and four villas are open to the grounds. When the weather is favourable many of the patients have their meals out of doors. The visiting commissioners express regret that in so well-equipped a hospital there should be no X ray outfit. The shortage of nurses is slightly less acute. During the year seven attendants and 16 nurses obtained their R.M.P.A. certificate, bringing the total certificated and registered to 59 men and 61 women.

THE WEST RIDING MENTAL HOSPITAL at STORTHES HALL housed 1856 patients at the end of 1930. The recovery-rate for the year was 22·92 per cent. and the death-rate 8·23 per cent. A number of patients were sent out on trial before discharge, 35 of them with money allowances. The general health was satisfactory; there were two cases of dysentery and a carrier was found. Only six patients were suffering from tuberculosis and there was no other epidemic disease. Twenty-two cases of general paralysis were treated with malaria and four recovered sufficiently for discharge; of the 50 patients treated during the last three years 7 have been discharged, 21 have improved, and 9 have died. Nine cases of dementia præcox were given intramuscular sulphosin but without any lasting improvement. The dental surgeon visited weekly and saw a large number of patients. An out-patient clinic is open on two afternoons a week at the hospital, but its success is unfortunately limited by its inaccessibility and a certain amount of prejudice. Ten men have full parole and 71 men and 13 women have parole within the grounds; four wards are "open door." The laboratory carried out a large number of routine investigations and all new cases admitted were tested for dysentery and typhoid. Of the nursing staff 48 men and 26 women are certificated or registered, four men and six women having obtained their R.M.P.A. certificate during last year.

THE SOUTH YORKSHIRE MENTAL HOSPITAL at WADSLEY, near Sheffield, had 1954 patients resident on Dec. 31st, 1930. The recovery-rate for the year was 34·7 per cent. and the death-rate 9 per cent. Autopsies were held on 97·7 per cent. of the fatal cases. A severe form of diarrhœa, for which no cause could be found, attacked some female patients early in the year, but did not cause any deaths. There was one case of enteric fever, two of scarlet fever, two of dysentery, four of erysipelas, 10 of influenza, and 11 of tuberculosis. Leave of absence was granted to 132 men on 563 occasions and to 106 women on 307 occasions, full parole to 30 patients,

and restricted parole to 28 men. Four male and three female wards are open to the gardens and two male wards to the grounds generally. The staff of the Institution are assisted by a consulting physician, a consulting surgeon, and a consulting dentist. Out-patient clinics are held at the Sheffield Royal Infirmary and the Sheffield Royal Hospital, and over a thousand cases were seen during the year at each clinic. The treatment of general paralysis by induced malaria was continued, the total number of cases so treated now being 194. Twelve cases were discharged as recovered during the year. The laboratory, in addition to routine work, has carried out a systematic research for carriers of dysenteric organisms. A large number of patients were treated in the X ray and ultra-violet ray department and the dentist examined 542 patients. During the year 14 attendants and 14 nurses obtained their R.M.P.A. certificate, and one nurse obtained the G.N.C. certificate.

At the STIRLING DISTRICT MENTAL HOSPITAL there were 1015 patients on May 15th, 1931, and 24 voluntary patients in addition. The question of overcrowding is receiving the anxious consideration of the new joint committee. The hospital contains a number of mental defectives and senile patients who could with benefit to themselves and to the institution be accommodated elsewhere. The recovery-rate for the year was 40·3 per cent. and the death-rate 10·8 per cent.; post-mortem examinations were carried out whenever permission was given. During the year 14 patients were sent out on trial to their friends. The general health was good, and there was no epidemic disease. The electro-therapeutic department treated 227 patients with good results, and the X ray apparatus was used for diagnosis in 16 cases. The dentist visited weekly and saw 236 patients, many of them with marked oral sepsis. The patients have derived much benefit from their work in the occupational therapy department, and a ready sale has been found for the articles made. The able-bodied male patients work on the farm and garden, and the year was so successful that a balance of £2409 was recorded. The laundry is now entirely worked by electricity and has been cheerfully decorated. During the year eight nurses and nine attendants obtained the R.M.P.A. certificate, which is now held by 40 per cent. of the entire nursing staff.

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED FEB. 13TH, 1932.

Notifications.—The following cases of infectious disease were notified during the week: Small-pox, 70 (last week 57); scarlet fever, 1422; diphtheria, 991; enteric fever, 31; pneumonia, 1968; puerperal fever, 39; puerperal pyrexia, 97; cerebro-spinal fever, 54; acute poliomyelitis, 4; acute polio-encephalitis, 2; encephalitis lethargica, 14; continued fever, 1; dysentery, 16; ophthalmia neonatorum, 99. No case of cholera, plague, or typhus fever was notified during the week.

The number of cases in the Infectious Hospitals of the London County Council on Feb. 16th–17th was as follows: Small-pox, 118 under treatment, 4 under observation (last week 105 and 4 respectively); scarlet fever, 1175; diphtheria, 1526; enteric fever, 9; measles, 1127; whooping-cough, 340; puerperal fever, 16 (plus 12 babies); encephalitis lethargica, 220; poliomyelities, 4; "other diseases," 233. At St. Margaret's Hospital there were 19 babies (plus 10 mothers) with ophthalmia neonatorum.

Deaths.—In 117 great towns, including London, there was no death from small-pox or enteric fever, 49 (13) from measles, 6 (2) from scarlet fever, 50 (3) from whooping-cough, 29 (10) from diphtheria, 44 (9) from diarrhœa and enteritis under two years, and 279 (56) from influenza. The figures in parentheses are those for London itself.

The reported deaths from influenza are still falling slowly, but the total deaths for the year so far amount to 1990 against 1579 for the corresponding period of 1931. Of the great towns Birmingham again stands highest with 15 deaths from influenza, Sheffield following with 10, Bradford, Leeds, Manchester, and Leicester each with 8. Manchester reported 7 deaths from measles, Portsmouth and Liverpool each 5. Whooping-cough accounted for 9 deaths at Liverpool, 5 each at Manchester and Birmingham.

The number of stillbirths notified during the week was 279 (corresponding to a rate of 46 per 1000 births), including 50 in London.

THE SERVICES

COMMISSIONS IN THE ROYAL ARMY MEDICAL CORPS.

THE War Office announces that the successful candidates for Commissions in the Royal Army Medical Corps during January last were as follows: D. P. F. Mulvany, Charing Cross; C. S. Gross, Guy's Hospital; J. B. Macfarlane, University of Aberdeen; P. J. Richards, St. Bartholomew's Hospital; R. D. MacRae, University of Aberdeen; R. St. J. Lyburn, Trinity College and Dublin; J. V. Quinn, Royal College of Physicians and Surgeons, Ireland.

Vacancies still exist, and particulars can be obtained either by letter, or personally from the Assistant Director-General, Army Medical Services, The War Office, London, S.W.1.

ROYAL NAVAL MEDICAL SERVICE.

The following appointments have been notified: Surg. Lt. Comdrs. A. L. McDonnell to *Canterbury*, and A. de B. Joyce to *President*, for course. Surg. Lt. J. J. Keevil to *Alecto*.

ROYAL NAVAL VOLUNTEER RESERVE.

Proby. Surg. Lts. E. A. H. Hindhaugh and J. F. Heggie to be Surg. Lts.

ROYAL ARMY MEDICAL CORPS.

Lt.-Col. H. E. Priestley is placed on the half-pay list on account of ill-health.

Maj. (temp. Lt.-Col.) A. E. B. Jones to be Lt.-Col.

Maj. A. Hendry to be temp. Lt.-Col.

The undermentioned Lts. (on prob.) are confirmed in their rank: J. T. Robinson, W. A. Robinson, F. K. Bush, A. Macdonald, W. R. M. Drew, J. B. George, W. B. F. Brennan, and B. Blewitt.

The undermentioned to be Lts. (on prob.): J. B. Macfarlane, and is secd. under the provisions of Art. 213, Royal Warrant for Pay and Promotion, 1931, W. R. Parkes (since decd.), and P. J. Richards.

TERRITORIAL ARMY.

Col. R. E. Bickerton to be Hon. Col. 56th (1st Lond.) Div.

Lt.-Col. F. T. Rees to be Bt. Col.

Lt.-Col. & Bt. Col. L. A. Harwood, from R.A.M.C., T.A., to be Col., and to be A.D.M.S., 56th (1st Lond.) Div. T.A., vice Col. R. E. Bickerton.

Maj. T. C. Bowie, R.A.M.C., to be Divl. Adjt., 52nd (Lowland) Div., vice Capt. C. A. Hutchinson, R.A.M.C., who vacates the appt. on completion of tenure.

Maj. G. G. B. Holroyde, R.A.M.C., to be Divl. Adjt., 48th (S. Midland) Div., vice Maj. W. Y. Eccott, R.A.M.C., who vacates the appointment on completion of tenure.

Maj. J. L. Hamilton to be Lt.-Col. and to command the 167th (City of London) Fd. Amb.

B. A. Pain to be Lt.

ROYAL AIR FORCE.

Flight Lt. H. C. Sutcliffe Pimblett is granted a permanent commission in this rank.

INDIAN MEDICAL SERVICE.

R. I. Reid and F. C. Jackson to be Lts. (on prob.).

The undermentioned appts. have been made in India:—D.D.M.S.: Maj.-Gen. J. F. Martin. A.D's.M.S.: Cols. B. H. V. Dunbar, W. W. Browne, J. C. Kennedy, and Lt.-Col. N. E. Dunkerton, R.A.M.C. D.A.D's.M.S.: Majs. E. E. Holden, R.A.M.C., and W. Bruce, R.A.M.C. A.D.H.: Maj. T. B. Nicholls, R.A.M.C. A.D's.H. & P.: Lt.-Col. A. N. Fraser, R.A.M.C., and Maj. F. R. Coppinger, R.A.M.C. D.A.D's.P.: Majs. F. R. Coppinger, R.A.M.C., and D. T. M. Large, R.A.M.C.

PARLIAMENTARY INTELLIGENCE

NOTES ON CURRENT TOPICS.

DANGEROUS DRUGS BILL.

The Earl of LUCAN (Captain of the Gentlemen-at-Arms), in moving the second reading of the Dangerous Drugs Bill in the House of Lords on Wednesday, Feb. 17th, said that its objects was to amend the Dangerous Drugs Acts 1920–25 so far as was necessary to enable the Government to ratify the International Convention signed at Geneva in the summer of last year to limit the manufacture and to regulate the distribution of narcotic drugs. An extensive illicit traffic in such drugs as morphine, heroin, and cocaine was being carried on in many parts of the world, and that traffic was facilitated by the fact that these drugs were being produced in quantities largely in excess of the medical and scientific requirements of the world. The Opium Advisory Committee of the League of Nations had advocated the limitation of the manufacture of these drugs and considered that the most effective step towards suppressing the illicit traffic would be to prohibit the production of quantities beyond those which were required for medical and scientific purposes. Such limitation could only be brought about by international agreement.

The Bill was read a second time.

Clause 1 of the Bill is as follows :—

(1) The following shall be substituted for Subsection (1) of Section 8 of the Dangerous Drugs Act, 1920 (in this Act referred to as "the principal Act"):—"(1) The drugs to which this part of this Act applies are—(*a*) medicinal opium; (*b*) any extract or tincture of Indian hemp; (*c*) morphine and its salts, and diacetylmorphine (commonly known as diamorphine or heroin) and the other esters of morphine and their respective salts; (*d*) cocaine (including synthetic cocaine) and ecgonine and their respective salts, and the esters of ecgonine and their respective salts; (*e*) any solution or dilution of morphine or cocaine or their salts in an inert substance whether liquid or solid, containing any proportion of morphine or cocaine, and any preparation, admixture, extract, or other substance (not being such a solution or dilution as aforesaid) containing not less than one-fifth per cent. of morphine or one-tenth per cent. of cocaine or of ecgonine; (*f*) any preparation, admixture, extract, or other substance containing any proportion of diacetylmorphine; (*g*) dihydrooxycodeinone, dihydrocodeinone, dihydromorphinone, acetyldihydrocodeinone, dihydromorphine, their esters and the salts of any of these substances and of their esters, morphine-N-oxide (commonly known as genomorphine), the morphine-N-oxide derivatives, and any other pentavalent nitrogen morphine derivatives; (*h*) thebaine and its salts, and (with the exception of methylmorphine, commonly known as codeine, and ethylmorphine, commonly known as dionin, and their respective salts) benzylmorphine and the other ethers of morphine and their respective salts; (*i*) any preparation, admixture, extract, or other substance containing any proportion of any of the substances mentioned in paragraph (*g*) or in paragraph (*h*) of this Subsection.

For the purpose of the foregoing provision the expression "ecgonine" means lævo-ecgonine, and includes any derivatives of ecgonine from which it may be recovered industrially, and the percentage in the case of morphine shall be calculated as in respect of anhydrous morphine.

(2) Subsection (2) of Section 8 of the principal Act (which empowers His Majesty to declare that Part III. of that Act shall apply to certain new derivatives) shall be amended by the insertion after the words "if improperly used" of the words "or is capable of being converted into a substance which is, or is likely to be productive, if improperly used."

Clause 2 declares that: (1) It shall not be lawful for any person in the United Kingdom to trade in or manufacture for the purpose of trade any products obtained from any of the phenanthrene alkaloids of opium or from the ecgonine alkaloids of the coca leaf, not being a product which was on the thirteenth day of July, nineteen hundred and thirty-one, being used for medical or scientific purposes: Provided that if His Majesty is at any time satisfied as respects any such product that it is of medical or scientific value, he may by Order in Council direct that this Subsection shall cease to apply to that product.

(2) If it is made to appear to His Majesty that a decision with respect to any such product as is mentioned in Subsection (1) of this Section has in pursuance of Article 11 of the Geneva Convention (No. 2) been communicated by the Secretary-General of the League of Nations to the parties to the said Convention, His Majesty, by Order in Council, may, as the case requires, either declare that the provisions of the said Part III. shall apply to that product in the same manner as they apply to the drugs mentioned in Subsection (1) of Section 8 of the principal Act as amended by this Act or apply the said Part III. to that product with such modifications as may be specified in the Order.

(3) His Majesty may by Order in Council apply Part III. of the principal Act, with such modifications as may be specified in the Order to any of the following drugs, that is to say, methylmorphine (commonly known as codeine) ethylmorphine (commonly known as dionin) and their respective salts.

It is provided in Clause 3 that Subsection (2) of Section 6 of the Dangerous Drugs and Poisons (Amendment) Act, 1923 (which defines the expression "corresponding law"), shall have effect as though the reference therein to the provisions of the Hague Convention included a reference to the provisions of the Geneva Convention (No. 1) and the Geneva Convention (No. 2).

Under Clause 4 an Order or Declaration made by His Majesty in Council under the Dangerous Drugs Act, 1920 to 1932, may be varied or revoked by a subsequent Order or Declaration made in the like manner and subject to the like provisions.

Clause 5 provides that the Act shall not extend to Northern Ireland except in so far as it amends the Dangerous Drugs Acts, 1920 to 1925, in relation to matters with respect to which the Parliament of Northern Ireland have not power to make laws. The Act is to come into operation on such date as His Majesty may by Order in Council appoint, and different dates may be appointed for different provisions of the Act and in relation to different countries. Lastly, Section 3 and Section 6 of the Dangerous Drugs Act, 1925, are repealed.

UNEMPLOYMENT.

"FAILURE TO INITIATE SUCCESSFUL MEASURES."

In the House of Commons on Wednesday, Feb. 17th, Mr. LAWSON moved on behalf of the Opposition :—

"That this House, recognising the increasing gravity of unemployment and of the condition of the unemployed and their families, regrets the failure of the Government to initiate effective measures for the reconstruction of the economic life of the country and the short-sighted economy of expenditure on works of public utility, especially housing, and on schemes of allotments, whereby unemployment has been increased; and is of opinion that the administration of the means test is causing grave injustice and distress and that the machinery of the poor-law should not be used in connexion with applications for unemployment benefit."

He said that it must have come as a shock to the House and the country to learn that the unemployed had increased by 218,000 upon last month's figures. There were 7000 fewer employed than in October. Even the figure of 218,000 was not altogether accurate, for the Minister of Labour had told the House that during the past three months 130,000 people had lost their employment benefit or any transitional payment which they had previously received. To-day there were 2,750,000 persons unemployed; more than 2,000,000 wholly unemployed, 500,000 temporarily unemployed, and 100,000 casually employed.

"IF THERE WAS A WAR."

With the exception of a comparatively small margin these unemployed persons were men and women of the highest calibre and some of the finest craftsmen in the world to-day. Nothing was being done, and nothing was contemplated to meet the needs of the unemployed. If there was a war to-morrow masses of these people, particularly the youth, would become important people at once. But there was no war and they were scantily clad, half-fed, struggling to maintain their moral, and a menace generally to the vitality of the nation. The Government had taken 10 per cent. of the very meagre sum

provided for the unemployed. The Chancellor of the Exchequer spoke the other night about the cost of living being artificially low. If the right hon. gentleman could try for a week the standard of living of some of these people he would know that the cost of living in proportion to the money which they received was very high. He asked the Government whether it was not time that they considered the restoration of the money which had been cut off unemployment benefit. The Government had better be careful what they did in the way of relieving the taxation of the comfortably placed classes in view of the state of mind of the people of this country at the present time. The Minister of Labour stated in January that on Dec. 21st there were 742,222 men and 97,000 women with applications for transitional benefit. The claims of 683,442 men and 78,000 women were authorised for payment, while the needs of 59,000 men and nearly 19,000 women were not held by the local authorities to justify payment. That was roughly the starting of the operation of the means test. When everything was said and done the fact remained that the Government had put nearly 1,000,000 unemployed persons into the same position as the paupers of this country. He urged the Government to take this motion seriously. The living of many people depended upon it. There were children lacking shoes to-day as a result of the present policy.

Mr. TINKER seconded the motion.

GOVERNMENT REPLY TO CRITICISM.

Sir HENRY BETTERTON (Minister of Labour) said that during the first seven or eight months of last year—in fact until the Labour Government left office—the unemployment figures increased month by month until they reached their peak at that time. Had it not been for the very heavily increased taxation which the present Government were compelled to lay on the shoulders of the people of this country last October there was very little question but that the situation would be much better than it was to-day. When the Labour Government was in office two years the results of their efforts to reconstruct the economic life of the country was that the country was brought to the verge of bankruptcy. During that period unemployment increased by 136 per cent., or by 1,500,000. If that was their idea of reconstructing the economic life of the country, it was indeed a lesson and a warning. The present Government was asked to continue the vicious circle of increased national expenditure and increased rates. If that were done it would increase unemployment. Much of the criticism which had been levelled against the needs test in the House and in the country was due to a very imperfect appreciation of the fact that transitional payments were not insurance benefit, but State maintenance paid to those who had exhausted their insurance rights. Was the Labour Party in favour of State relief being given, without any insurance qualification and without any consideration as to the means of the applicants?

THE POOR-LAW STIGMA.

In the administration of this matter by the Public Assistance Committees the Government had taken every step in their power to ensure that what was called the stigma of the poor-law should not affect the applicants at all. Some lack of uniformity was inevitable where there were different bodies administering these cases in different areas. On the other hand, it was only right that there should be some lack of uniformity, because it might be that in some districts rents and the cost of living were higher. He had done his best, however, to see that the means test was not worked harshly or unfairly. As a result of representations which had been made to him, and as a result of the advice and efforts of the inspectors of the Ministry of Health, the discrepancies had now been largely removed. There were still some discrepancies arising from a difference in poor-law conditions and practice, but he understood that the Minister of Health was going to summon a conference of public assistance committees from the difficult areas and to ask them to consider jointly how variations in practice, for which no justification could be proved, could be removed. As to the question of disability pensions, he had satisfied himself that in the interests of the disabled men themselves justice could best be done by individual and sympathetic treatment of cases on their merits. The Public Assistance Committees had the necessary discretion to take into account the extra needs of a disabled man.

SIGNS OF RETURNING CONFIDENCE.

He believed that there were signs at this moment of returning confidence in the country. If they regarded the position as it was last August, and the prospects to-day, it was clear that the country was gradually, painfully, and very slowly surmounting some of these difficulties which last summer seemed absolutely overwhelming. With a balanced budget and with determination on the part of all sections of the community to face realities, the failure to do which in the past had been so largely the cause of our troubles, the country could look forward to the future with a good deal more confidence than seemed possible last year. (Cheers.)

SPECIAL COMMISSION TO BE CALLED.

After further debate,

Sir E. HILTON YOUNG (Minister of Health) said that in addition to the conference of Public Assistance Committees (which had been referred to by the Minister of Labour) he proposed, in order that there might be an even wider coöperation between different areas, to call a conference of what he might call a special commission or departmental committee of the most experienced inspectors of the Ministry of Health, who should attend the area conferences and spread the light of information and coördination from one part of the country to the other. In that way they would be able to get rid, by the natural process of administration, of those variations in practice which were unnecessary. The Government would watch for any opportunity of promoting works which would provide employment subject to two conditions: first, that the works would be definitely remunerative; and secondly, that they could not just as well be undertaken by private enterprise without Government assistance. They desired to turn away once and for all from the policy, which was followed like a will-'o-the-wisp by the Labour Government, to a policy of economy which they believed was essential to the welfare of the country.

The motion was rejected by 415 votes to 39.

DANGEROUS DRUGS BILL.

The Dangerous Drugs Bill passed through Committee in the House of Lords on Tuesday, Feb. 23rd, with one small drafting amendment.

HOUSE OF COMMONS.

WEDNESDAY, FEB. 17TH.

Hospitals and Motor Accident Cases.

Dr. HILLMAN asked the Minister of Transport if he was aware that, from a recent inquiry by the Yorkshire Voluntary Hospitals Committee relative to the number of third-party motor accidents treated in 36 hospitals in Yorkshire during the first six months working of the Road Traffic Act, 1930, it appeared that the total cost incurred by the hospitals for treating these cases amounted to £4500, of which sum only £123 was recovered from accident insurance companies; and whether he would amend the Road Traffic Act accordingly.—Mr. PYBUS replied: While I sympathise with the difficulties of the hospitals, I am afraid I cannot see my way to introduce further legislation.

Duty on Imported Petrol.

Sir VIVIAN HENDERSON asked the Chancellor of the Exchequer whether it was the intention of the Government that the existing duty on imported petrol and similar oils should still apply to such imports from the Empire after

March 1st.—Major ELLIOT (Financial Secretary to the Treasury) replied: As hydrocarbon oils are goods chargeable with an existing duty of customs, they will not be affected by the proposals in the Import Duties Bill, which are what I presume my hon. friend has in mind.

Health of Acrobatic Performers.

Mr. DENVILLE asked the Minister of Health whether his returns showed any appreciable premature mortality or shortness of life in excess of normality among those who had been trained as children for acrobatic and similar work and had earned their livelihood in this branch of entertainment.—Sir E. HILTON YOUNG replied: I regret that no statistics are available in my Department on this subject.

THURSDAY, FEB. 18TH.

Dermatitis and Compensation to Workmen.

Sir VIVIAN HENDERSON asked the Home Secretary whether there had been an increase or a decrease in the number of cases of dermatitis in the last three years for which compensation had been paid; and whether any steps were taken by his department to encourage the wearing of gloves or mittens in appropriate cases.—Sir HERBERT SAMUEL replied: The Workmen's Compensation Statistics for 1928, 1929, and 1930 (which is the last year for which figures are available) show an increase in the number of cases. There were 1170 cases in 1928, 1405 in 1929, and 1499 in 1930. Various steps have been taken by the Department to enforce or encourage the wearing of gloves as a precaution against dermatitis. For example, gloves are required for persons employed in various processes under the Chemical Works Regulations of 1922, and the Chromium Plating Regulations of 1931, and under the Welfare Order of 1918 for use of bichromate potassium or sodium in dyeing, the Hollow-ware and Galvanising Welfare Order of 1921, and the Tanning Welfare Order of 1930. Further, a general leaflet providing information as to the causes of dermatitis and recommending precautions, including the use of gloves, has been prepared and widely distributed among occupiers of works likely to be affected, and, with a view to securing the coöperation of the workers, a form of cautionary notice which can be exhibited in the workrooms has been issued and put on sale through the Stationery Office. Reference is also made to the value of gloves in certain special memoranda dealing with the prevention of dermatitis in particular processes. Finally, I may draw attention to the collection of different kinds of gloves suitable for the purpose which is on exhibition in the special dermatitis section at the Home Office Industrial Museum in Horseferry-road, Westminster.

Medical Research Committee and Spahlinger Formula.

Mr. HAMMERSLEY asked the Minister of Health when he expected to receive the observations of the Medical Research Council and other competent research bodies on the statement by Mr. Spahlinger containing a formula for the treatment of tuberculosis.—Sir E. HILTON YOUNG replied: I am unable at present to say when it is likely that these observations will be received.

Sterilisation of Mentally Deficients.

Dr. MORRIS-JONES asked the Minister of Health whether he had now considered the setting up of a committee of experts to investigate and report on the question of the sterilisation of the mentally deficient; and when he would be in a position to announce the names of the members of the committee.—Sir E. HILTON YOUNG replied: I have not yet determined the precise form of inquiry which is likely to yield the best results.

Improvement of Unhealthy Areas.

Mr. JOHN asked the Minister of Health if he would state from the passing of the Housing Act, 1930, the number of schemes for the improvement of unhealthy areas submitted to the Ministry and the number confirmed; how many schemes had been undertaken by local authorities and the number completed; the total amount paid on account by the State towards slum clearance; and the ultimate State liability in respect of schemes approved, in continuation of the information given on Feb. 12th, 1931.—Sir E. HILTON YOUNG replied: Up to Jan. 31st last I had received resolutions declaring 377 areas in England and Wales to be clearance areas, and 10 areas to be improvements areas under the Housing Acts, 1930. These resolutions do not require confirmation by me. Complete returns have not yet been received, but at least 308 houses had been demolished in the areas in question by Dec. 31st last. The amount paid on account by the State towards slum clearance during the year 1931 was £83,672, and the ultimate annual State liability is roughly estimated at £280,000.

Results of 1931 Census.

Mr. BROCKLEBANK asked the Minister of Health when he would be able to publish the results of the Census, 1931.—Sir E. HILTON YOUNG replied: It is anticipated that the series of Census Reports will begin to be published about the middle of this year; but it cannot at present be stated when the publication of all reports will be completed.

Appointments of Medical Referees and Assessors.

Mr. THOMAS WILLIAMS asked the Home Secretary if he would take steps to prevent any medical referee or medical assessor being appointed under the Workmen's Compensation Act where such medical referee or medical assessor was acting from time to time in his professional capacity on behalf of the employers, indemnity companies, or workmen's trade union.—Sir HERBERT SAMUEL replied: It is a condition of the appointment of a medical referee that he shall hold no regular employment either on the employers' or on the workers' side, and the medical referees are enjoined that in their private practice they should, as far as possible, avoid cases which may come before them in their official capacity. It has not been considered necessary or practicable to impose more stringent restrictions, but if the hon. Member has some individual case in mind, and will send me particulars, I shall be glad to make any necessary inquiry.

Carbon Monoxide Gas in Coal-mines.

Mr. TINKER asked the Home Secretary if he was aware that, owing to the increased use of explosives and other causes in coal-mines, carbonic oxide gas was generated which caused incapacity and, in some cases, death; and if he would consider placing this among the scheduled diseases under the Workmen's Compensation Act.—Sir HERBERT SAMUEL replied: This question is not a new one and has been examined more than once. In particular, a proposal to schedule poisoning by this gas was considered and rejected by the Industrial Diseases Committee of 1907, on evidence that the effects of such poisoning are invariably sudden and therefore in the nature of accidents, and already covered as such by the Act. The question whether all cases are so covered has however been recently referred for further examination to the Industrial Diseases Committee, now sitting under the chairmanship of Sir Humphry Rolleston, and if the hon. Member is aware of any cases showing the need for an extension of the schedule, I would suggest that he should send full particulrs to the Secretary of the Committee at the Home Office.

London Refuse.

Mr. MCENTEE asked the Minister of Health if it was proposed to take any action on the Report of the Departmental Committee on London Cleansing, issued in May, 1930; and whether any regulations were to be issued prohibiting the dumping of crude refuse in dumps adjacent to villages or occupied houses in the Home counties.—Sir E. HILTON YOUNG replied: The Metropolitan Authorities have been pressed to discontinue the insanitary tipping of refuse, and active measures have been taken by some of them. The main recommendations of the Departmental Committee would require legislation, of which I see no prospect this session. But the Town and Country Planning Bill now before Parliament contains proposals for empowering local authorities to control the deposit of refuse by provisions in planning schemes.

Salaries of Local Government Officers.

Mr. HICKS asked the Minister of Health whether the temporary voluntary abatements of wages and salaries which local government officers and servants had been subjected to as a result of the national economy measures were to be taken into account for the basis of pension; and, if so, whether he would consider making amendments to the Superannuation Acts that affected local government officers and servants, so that their pension rights should not be reduced as a consequence of these temporary abatements.—Sir E. HILTON YOUNG replied: I have asked the several associations of local authorities for their views as to the desirability of legislation for this purpose. The further consideration of the matter must await the receipt of their replies.

Grading of Milk.

Lord SCONE asked the Minister of Health whether he would consider the advisability of reclassifying the various grades of milk produced in this country, and also the present position, in which the consumer was led to believe that Grade A milk was the highest class produced, whereas it was in reality only of third-class quality.—Sir E. HILTON YOUNG replied: I will consider the matter in consultation with my right hon. friend the Minister of Agriculture and Fisheries. But any reclassification of graded milks on the lines suggested by my noble friend would require legislation,

and I regret that at present I cannot contemplate the introduction of legislation on this subject.

Milk Prosecutions.

Mr. GLOSSOP asked the Minister of Health the number of prosecutions that have taken place in England during 1929, 1930, and 1931, in connexion with milk deficient in fat, together with the number of convictions obtained.

Brigadier-General CLIFTON BROWN asked the Minister of Health how many prosecutions for too low a percentage of butter fat under the Milk Adulteration Order came before the courts in 1931; and in how many of these cases were convictions obtained.—Sir E. HILTON YOUNG replied: I regret that I am unable to give all the information asked for, but in 1931 there were 98 prosecutions for the sale of adulterated milk in London, and convictions were obtained in 51 cases, two being still outstanding. The total number of samples of milk reported as adulterated in England and Wales is roughly 15 times the number so reported in London.

Brigadier-General CLIFTON BROWN asked the Minister of Health how many samples of fresh liquid milk were taken during the last three months by the port sanitary authorities of London, Harwich, and Newhaven, respectively; and whether any of these liquid milk imports were rejected for not being up to standard requirements in cleanliness and butter fat.—Sir E. HILTON YOUNG replied: The answer to the first part of the question is 8, 49, and 13 respectively. Three samples taken at Harwich and seven taken at Newhaven failed to comply with the bacterial standard laid down, and the importation of milk from the sources of supply of these samples has been discontinued. Ninety-three samples taken at the ports in question were examined by the Government chemist, and none was reported as deficient in butter-fat.

Death Sentence on Young Persons.

Mr. GOLDIE asked the Home Secretary of State for the Home Department the number of occasions on which since the year 1922 sentence of death had been pronounced upon persons between the ages of 16 and 21; and in how many cases capital punishment had been executed in the said period upon such persons.—Sir HERBERT SAMUEL replied: During the ten years from 1922 to 1931 inclusive the figures were 18 and 4. I would add that the executions took place in the years 1922, 1923, 1925, and 1926, and that the ages were between 18¼ years and 20¼ years.

Slum Clearance in Lancashire.

Mr. HAMILTON KERR asked the Minister of Health how many slum clearance schemes had been approved in Lancashire, and in which towns, since the passing of the Housing Act of 1930.—Sir E. HILTON YOUNG replied: Seventy-two clearance areas have been declared in Lancashire. The following is a list of the towns concerned. *County Borough Councils:* Bolton, Bootle, Liverpool, Manchester, Preston, Rochdale, Salford, and Wigan. *Non-County Borough Councils:* Ashton-under-Lyne, Eccles, Leigh, and Rawtenstall. *Urban District Councils:* Atherton, Dalton-in-Furness, Farnworth, Leyland, Newton-in-Makerfield, Orrell, Prestwich, Swinton and Pendlebury, and Whitefield.

Rural Housing.

Mr. PARKINSON asked the Minister of Health how many houses had been approved under the Housing (Rural Authorities) Act, 1931.—Sir E. HILTON YOUNG replied: The Committee appointed under the Act have informed 110 authorities that they are prepared to entertain applications to the extent of 1733 houses for the agricultural population.

TUESDAY, FEB. 23RD.

Radium Research.

Sir ERNEST GRAHAM-LITTLE asked the Minister of Health if he would consider the advisability of promoting the formation of a committee of inquiry to take evidence and to report as to the best methods of forwarding radium research and advising as to the most useful application of the sums of public money subscribed for that purpose and at present in the custody of the National Radium Trust.—Sir E. HILTON YOUNG replied: My hon. friend will be aware that, as has already been stated in the House on several occasions, the Radium Trust and the Radium Commission are not appointed by the Minister of Health, but are constituted by Royal Charter. It is the duty of the Radium Commission under Article 7 of the Charter to make arrangements for the proper custody, equitable distribution and full use of the radium which may from time to time be the property of the Trust, with the object of promoting the treatment of the sick throughout Great Britain and the advancement of knowledge of the best methods of rendering such treatment and of securing due economy in the use of radium for the purposes of such treatment; to consider proposals submitted to them for the use of the radium for these purposes, and to arrange the supply on loan of the radium or any preparations of it so as to enable proposals approved by them to be carried out. I have, therefore, in the first instance referred my hon. friend's suggestion to the Radium Commission for their consideration, and I will inform him of their views in due course.

Post-vaccinal Encephalitis.

Mr. GROVES asked the Minister of Health how many cases of, and deaths from, post-vaccinal encephalitis or other disease of the central nervous system following vaccination had been brought to the notice of his department since the adoption of the new vaccination regulations on Oct. 1st, 1929.—Mr. ERNEST BROWN (Parliamentary Secretary to the Ministry of Health) replied: Since Oct. 1st, 1929, 38 cases of suspected disease of the central nervous system following vaccination, including suspected cases of post-vaccinal encephalitis, have come to the notice of my department. Inquiries showed that in at least five of these cases the suspicion could not be verified. In 18 causes vaccination had been followed within a short period by the occurrence of a disease of the central nervous system without there being any reason to associate this disease with the antecedent vaccination. Of these 13 were fatal. There remain 15 cases in which the occurrence of post-vaccinal encephalitis was definitely established, and of these eight proved fatal.

Miners' Hours Convention.

Mr. MANDER asked the Secretary for Mines the present position with reference to the international convention for miners' hours.—Mr. ISAAC FOOT replied: His Majesty's Government is favourably disposed towards the Convention. The detailed application of some of its provisions to the coal-mines of this country presents certain problems which are under consideration. As soon as these points have been disposed of, the Government will be prepared to ratify the Convention provided that the other six countries will do so at the same time.

Gas Detectors in Coal-pits.

Mr. HANNON asked the Secretary for Mines when he proposed to undertake the experiment of the introduction of gas detectors into certain coal-pits; and if he would explain the process by which the proposed practical tests would be carried out.—Mr. ISAAC FOOT replied: I have asked the interests directly concerned—including the Mining Association and the Miners' Federation—to coöperate in organising and watching thorough pit trials on a working scale with an automatic firedamp detector. It is my hope that the scheme—which will require to be worked out carefully—will be settled by common consent, and discussions to that end will be conducted as speedily as possible.

DONATIONS AND BEQUESTS.—Among other bequests the late Mr. Henry Atkinson, of Birkenhead, left £500 each to the Liverpool Royal Infirmary, the Liverpool Southern Hospital, the Liverpool Northern Hospital, and the Liverpool Children's Hospital; £200 to the Liverpool Eye and Ear Infirmary and the School for the Blind, £1000 to Ulverston Cottage Hospital, and 4 per cent. of the residue, with a maximum of £400, to the Liverpool Cancer Fund.

NEWCASTLE INFIRMARY: REJECTION OF CONTRIBUTORY SCHEME.—By 24 votes to 16 the house committee of Royal Victoria Infirmary, Newcastle-on-Tyne, rejected a proposal for the establishment of a contributory scheme, the chairman remarking that up to the present the Infirmary had been able to meet fairly satisfactorily all the demands made upon it. The suggestion to put into force some scheme of compulsory contribution was warmly espoused by Sir Robert Bolam in a recent address to county hospital representatives, in which he pointed out that the workers in Northumbria were contributing directly about £130,000 towards the £300,000 spent annually on keeping up voluntary hospitals. Adding thereto the employers' contribution, which amounted to about 20 per cent. of that of the work-people, there remained double that total to be raised by donations, subscriptions, and investments. He pleaded for equality of effort among those who ought to support hospitals, adding his own belief that the money to carry on and extend the services would not be forthcoming without compulsion. A contributory scheme would have the further advantage of facilitating interchange of patients among the different hospitals in the area.

OBITUARY

WILLIAM FREDERICK HASLAM, M.B., Ch.B. Birm., F.R.C.S. Eng.

CONSULTING SURGEON, BIRMINGHAM GENERAL HOSPITAL.

WE regret to announce the death on Feb. 18th at his residence in Vicarage-road, Edgbaston, of Mr. William Frederick Haslam, sometime professor of surgery in the University of Birmingham, after a prolonged illness, at the age of 74.

Prof. Haslam received his medical education at St. Thomas's Hospital Medical School, having previously been articled, in the old-fashioned manner, to a member of the surgical staff of the Royal Berkshire Hospital, Reading. He spent over two years at Reading, and as a student at St. Thomas's Hospital he soon distinguished himself by his aptitude for anatomy. He became assistant demonstrator in the subject and gained the Cheselden medal in anatomy and surgery. He qualified as M.R.C.S. in 1878, held the usual resident appointments at the hospital, and was made a prosector in anatomy at the Royal College of Surgeons of England. In 1881 he obtained the Fellowship of the College, and in the following year was elected assistant surgeon at the Birmingham General Hospital.

For the rest of his professional life Prof. Haslam worked in Birmingham. At Queen's College, Birmingham, he was appointed medical tutor in 1883, and in the following year demonstrator of anatomy, which post he held till 1892. He became full surgeon to the General Hospital in 1891, and held this position till the end of the war, his term of office being prolonged despite the age regulation for retirement. His work as a surgeon, always characterised by a profound knowledge of anatomy, was of a very sound order, and his clinical teaching was practical and much appreciated by the students. On the formation of the University of Birmingham in 1900 he was appointed lecturer in applied anatomy, then lecturer in general surgery to the dental school, and finally, in 1908, joint professor of surgery from 1913 to 1919. On retiring from the chair he accepted the post of dean of the medical faculty in the University, and held this office, together with the lectureship in applied anatomy, until 1928. Throughout this long period of service he discharged the duties with a zeal and interest which were reflected in the high opinion formed of him by his colleagues, who on his retirement from active work made a presentation to him as "a token of affection and gratitude for valuable services to the medical and dental schools and the University during the period of 46 years—1882 to 1928." The University Medical Society instituted at his retirement a Haslam Oration in memory of his long association with the medical school.

Haslam was much esteemed outside his own University as an examiner, acting in this capacity for two periods, in anatomy, for the primary Fellowship of the Royal College of Surgeons of England, while he examined in surgery at different times for the Universities of London, Liverpool, Leeds, and Bristol. At the College of Surgeons he was a member of Council from 1908 to 1924, serving as vice-president for two years, and as chairman of the court of examiners. In 1911 he was Lettsomian lecturer at the Medical Society of London, and delivered a series of lectures upon operations for stone in the male bladder, which were reported in our columns; but he was a quite infrequent contributor to medical literature.

Sir Gilbert Barling adds the following simple and sympathetic words upon his life-long colleague: "Haslam and I were associated for nearly fifty years in hospital and in university work. I do not think he had an enemy in the world; he was above all things loyal, kindly, and highly conscientious in his work. In the later period of his life, when he might well have left to one of his junior colleagues the urgency calls of night emergencies at hospital, he always insisted on attending to them himself, this not because he wished to deprive his juniors of experience but from a very high sense of duty. He was not so much marked as a dexterous operator—operation work was, I always thought, a considerable strain upon him—but he rose to the occasion when difficulties presented themselves, and he never did anything wild or rash. But his powers of diagnosis were excellent, and his opinion was often invited by his colleagues in difficult cases. As a teacher he was very methodical and effective, whether in the wards or in the anatomy rooms; in the latter he had the gift, not too common in these days, of adapting the parts of anatomy to their applications in surgery—a gift which made him very popular with students. For some time after he had retired from his hospital surgeoncy he continued his anatomical teaching greatly to the advantage of the school of medicine. As an examiner he was admirable both in the earlier and in the later subjects; his experience in this work was quite exceptional, and he really liked it—which can probably be said of few surgeons. His fairness, his desire to do justice to what the student knew, rather than to find out his weakest points, gave the victims under examination a sense of confidence and of fair treatment which brought out the best in them.

"For several years he was dean of the faculty of medicine in the University. The duties are not easy to carry out owing to the rather conflicting interests of the two main teaching hospitals, which are again somewhat aggravated by the dispersion of the teaching centres—two hospitals apart from each other and from the University buildings. Haslam's tact, his fairness and his integrity, secured a degree of harmony such as could have been attained by hardly anyone else; and his guidance of students, as well as of colleagues gathered around him a degree of affection of which any man might be proud.

"About four years ago he had a disabling illness which rendered him a complete invalid and at times gave him much distress. He bore his troubles with such dignity and courage as might be expected from him, having regard to the tenour of his life. May he rest in peace."

WALTER GEORGE SMITH, M.D. Dub., F.R.C.P. Irel.

Dr. Walter Smith, who died suddenly at his house in Merrion-square, Dublin, on Feb. 23rd, was formerly president of the Royal College of Physicians of Ireland, and also of the Royal Academy of Medicine in Ireland. He was King's professor of materia medica and pharmacy in the School of Physic, Trinity College, Dublin, from 1881 to 1920, and in this post he succeeded his father, Aquilla Smith, who had held the chair from 1864.

Walter Smith was educated at Trinity College,

Dublin, taking an honours degree in experimental science in 1867. He graduated as M.B. in the same year, and as M.D. in 1870. In 1868 he was elected a Fellow of the King and Queen's (subsequently Royal) College of Physicians in Ireland, of which, after filling various other offices, he became president in 1892. To the end of his life he took great interest in the affairs of the College, and until a few months ago rarely missed one of its meetings. He was "Father of the College" since the death of John Mallet Purser a few years ago. His chair of materia medica carried with it the duty of physician to Sir Patrick Dun's Hospital. He was also for several years physician-in-ordinary to the Lord Lieutenant, Earl Cadogan.

Smith's professional life had two main interests—dermatology and chemistry. In both he attained distinction. His occasional communications dealing with dermatology were authoritative, and although he never limited his practice as a physician to that specialty, he always took a great interest in it. In early life he considered entering on an academic career as a teacher of chemistry, but circumstances did not favour this scheme. He was, however, an ardent student of chemistry all his life, and on his gradual withdrawal from practice in recent years chemistry became his main intellectual interest. Rarely did a session pass without his bringing a paper dealing with recent developments in chemistry before the Royal Academy of Medicine or the private medical club he was in the habit of attending. "His experience as a physician and his knowledge of chemistry made him an ideal teacher of materia medica," writes a colleague. "He succeeded in being both scientific and practical. His scientific outlook, his mind sharp to a degree of scepticism, freed that complicated subject from the entanglements of tradition and superstition which tended, more 40 years ago than to-day, to render it a pathless wild. As a clinical teacher his effect was stimulating rather than informative. He brought everything to the test of science and common sense; he hated sham of every kind, in himself as well as in others; authority appealed as little to him as did mere novelty; pomposity and pretence angered him. Withal he had a simple and genuine humanity which endeared him to his students."

Births, Marriages, and Deaths

BIRTHS.

HARE.—On Feb. 16th, at a nursing home, the wife of Major John Hare, O.B.E., R.A.M.C., of Radnor-place, W., of a daughter.

SMALLEY.—On Feb. 19th, at "Stockcroft," Malthouse-lane, Kenilworth, the wife of Leonard Smalley, M.B., M.R.C.S., of a son.

DEATHS.

BLACKMAN.—On Feb. 12th, at Poplar House, Portsmouth, Josiah George Blackman, M.D. Brux., for nearly 50 years in medical practice in Portsmouth.

FORDYCE.—On Feb. 19th, at a nursing home in Cambridge, Boston Elphinstone Fordyce, M.B., of Stirling-road, Bournemouth, aged 73 years.

HASLAM.—On Feb. 18th, at his residence, Vicarage-road, Edgbaston, Prof. William Frederick Haslam, M.B., B.Ch., F.R.C.S., aged 74.

KINDNESS.—On Feb. 16th, at his residence, Castle Hill-avenue, Folkestone, John Kindness, M.R.C.S., L.R.C.P., aged 49 years.

PRICHARD.—On Feb. 18th, at Almeley, Bodenham-road, Hereford, from pneumonia, following typhoid, John Augustin Prichard, M.R.C.S., L.R.C.P.

SMITH.—On Feb. 16th, at Merrion-square, Dublin, Walter George Smith, M.D., F.R.C.P.I., ex-President Royal College of Physicians, Ireland, in his 88th year.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

MEDICAL NEWS

University of London.

At a meeting of the Senate on Feb. 17th the William Julius Mickle Fellowship for 1932 was awarded to Mr. Philip Eggleton, D.Sc., for his research on the labile compounds of phosphorus in muscle.

The title of Fellow of University College, London, was conferred on Mr. Harold John Channon, D.Sc., Johnston Professor of Biochemistry in the University of Liverpool; Dr. Henry Albert Harris, professor of clinical anatomy at University College and University College Hospital Medical School; and Mr. Herbert Tilley, late surgeon to the ear, nose, and throat department of University College Hospital. The title of Honorary Fellow of the University College, London, was conferred on Sir Edward Hilton Young, Minister of Health.

University of Edinburgh.

The Cameron prize for 1932 has been awarded to Dr. Edward Mellanby, F.R.S., professor of pharmacology in the University of Sheffield. The prize, whose value is about £200, is awarded annually for additions made to practical therapeutics during the previous five years.

University of Manchester.

Dr. J. F. Wilkinson, director of the laboratory of clinical investigations, has been appointed lecturer in systematic medicine, and Dr. Allan Taylor demonstrator in anatomy. Dr. J. M. Yoffey has resigned his appointment as assistant lecturer in anatomy on his appointment as lecturer in anatomy in the University College of South Wales and Monmouth.

Pharmaceutical Society of Great Britain.

At a meeting to be held at 17, Bloomsbury-square, London, W.C., at 8.30 P.M., on March 8th, Mr. Frank Wokes will give an address on the Importance of Ergot in Pharmacy.

Gresham College.

Four lectures on Great English Doctors and their Message will be given by Sir George Newman at Gresham College, Basinghall-street, London, E.C., at 6 P.M., on March 1st, 2nd, 3rd, and 4th.

Dr. Alfred Cox Testimonial Fund.

A communication has been sent out by the committee of this fund to the chairmen, secretaries of the division, and representatives of the British Medical Association, asking that as many names as possible should be added to the list of subscribers, so as to make that list a complete one of the Association.

Society of Radiographers.

The eleventh annual dinner of the Society was held at Pritchard's Restaurant on Friday last, Feb. 19th, Mr. Cyrus L. Winch, the president of the Society, being in the chair. The main toast of the evening, the "Prosperity of the Society," was proposed by Dr. A. E. Barclay, president of the British Institute of Radiology (B.I.R.), who referred in obstetric terms to the dates of origin of the Rontgen Society and the British Association for the Advancement of Radiology and Physiotherapy and their amalgamation as the B.I.R. in 1927, in which year the Society of Radiographers, founded seven years previously, became also affiliated to the B.I.R., though preserving their own identity. Dr. Barclay congratulated the Society of Radiographers on an increasing membership and the intention to maintain a high standard of entrance. Mr. Winch replied setting out well the inter-relations which should exist between radiographers and radiologists, alluding to the former as the head and the latter as the limbs of a joint pursuit of beneficent knowledge. The toast of the "Guests and Visitors" was proposed by Mr. C. W. Furby and replied to from different angles by Dr. H. A. Harris, professor of clinical anatomy in University College, London, and Dr. Cecil Teall, president of the Birmingham Radiographic Society. Dr. Teall pointed out the obvious advantages to be derived from the development of institutes for the pursuit of their joint science in the large provincial centres, while Professor Harris was both instructive and suggestive on the necessity for the insistence upon high educational standards of entrance. With regard to examinations, Professor Harris pointed out that their utility was indefinitely enhanced if they were well conducted, paying here a great tribute to the work at the English Conjoint Board of Sir Frederick Hallett, whose organisation of examinations he considered to constitute a model, rendering the task of the examiner less harassing, while assuring for the examinee "a square deal." Mr. C. E. A. Bedwell, house governor of King's College Hospital, also replied, and the evening closed with an entertainment consisting of an amusing dialogue by Messrs. Clapham and Dwyer.

The National Temperance Hospital.

The "London" has now been re-named the "National" Temperance Hospital.

Instruction for D.P.M.

From the London County Council we have received a syllabus of lectures and practical courses of instruction to be given at the Maudsley Hospital from the beginning of March onwards, intended primarily for candidates for a diploma in psychological medicine. Particulars of these and other facilities for instruction may be had from the Director of the Central Pathological Laboratory, Maudsley Hospital, Denmark-hill, London, S.E. 5.

Professional Nursing, Midwifery, and Public Health Conference.

On the first day of this conference, which is to be held at the New Horticultural Hall, Westminster, S.W., from Feb. 29th to March 4th, addresses on the following among other subjects will be given: THE LANCET Commission on Nursing, by Mr. Bradford Hill, D.Sc. (2.30 P.M.); Bookings for Out-patients, by Miss G. M. Wortley; Hospital Organisation, by Mr. Godfrey Hamilton.

New Physics Building at Leeds.

Last week Sir William Bragg opened the new physics building of Leeds University, which has been provided at a cost of £60,000. Sir William, who was formerly Cavendish professor at Leeds, recalled that in the old building researches had been made which had opened the way to discovery all the world over. There Stroud had produced the range-finder, the first measurements of X ray spectra were made there, and the first observations were recorded which determined the structure of crystals.

The L.C.C. and the Nursing Commission's Report.

At last week's meeting of the London County Council Admiral Cuthbert Hunter asked the chairman of the central public health committee whether, in view of the report of THE LANCET Commission on Nursing, she would consider, in collaboration with the education committee, the desirability of training girls for the nursing profession from the age of 16, and so enable girls leaving central schools to start their training without any break in their education? Dr. Barrie Lambert stated, in reply, that the final report of the Commission would be before the central public health committee on Feb. 25th, and the committee would, she anticipated, ask the medical officer of health to report to them fully on the subject of the Commission's recommendations. With regard to the particular point raised by Admiral Hunter, as to taking girls at the age of 16 for training for probationer nurses, this question, she said, had for some time been, and still was, under consideration by the committee.

British Social Hygiene Council.

A meeting of this Council was held on Feb. 10th in London, with Sir Basil Blackett, the president, in the chair, to receive a report from the executive. The report evidenced the expansion of the Council's work and its increased coöperation with allied societies. The voluntary and other economies of the time were mentioned, the chairman remarking that the loss of the block grant was not wholly a disadvantage; councillors, now approached personally, had had their interest practically awakened. A book, "Preparation for Marriage," has been compiled and will soon be on sale, and advice to girls in preparation for marriage is to be given by a bureau to be opened with the approval of the Council. The Council's two new films were cordially approved. Sir William Beveridge addressed the meeting on the aim of the British Broadcasting Corporation in issuing its "Family Return."

Moorfields Dinner.

The annual dinner of past and present students of the Royal London Ophthalmic Hospital was held at the Langham Hotel, London, on Feb. 11th, when Sir William Lister presided, and among those present were Sir Harold Fawcus, Vice-Admiral St. G. S. Bond, Sir Peter Chalmers Mitchell, Sir Arnold Lawson, K.B.E., Mr. Theodore Luling (chairman of the hospital), Dr. Gordon Holmes, and Mr. Treacher Collins. The "Hospital and Medical School," proposed by the chairman, was responded to by Mr. Luling and Mr. Charles Goulden, dean of the school. In submitting his annual report, the dean said there were 161 students attending the hospital, of whom 77 were new. Moorfields students accounted for 31 of the 38 successful candidates for the ophthalmic diploma of the Conjoint Board. For the Oxford diploma 5 of the 7 successful candidates came from Moorfields. During the year also 3 students had obtained the F.R.C.S. Edin. The enlargement of the out-patient department and medical school proposed two years ago were, he said, now likely to be put in hand, giving even better facilities for teaching.

Devonshire Hospital, Buxton.

Sir Humphry Rolleston, Regius professor of physic in the University of Cambridge, has been elected president for 1932–33 of the Devonshire Hospital for Rheumatic Diseases, Buxton.

Maternity Block at West Middlesex Hospital.

On Wednesday last week the Queen opened the new maternity block and electrical treatment department at the West Middlesex county hospital, Isleworth, which was opened by the Duchess of Teck, her mother, in 1897. It is a two-floored building with maternity wards, nursery, infants' sun-rooms and bathing-rooms, labour-room, and glazed verandahs. The antenatal department has a separate entrance, and the theatre is on the ground floor.

Appointments

CRAMERI, P. V., L.R.C.P. Lond., M.R.C.S., has been appointed Certifying Surgeon, under the Factory and Workshop Acts, for New Southgate, Middlesex.

Medical Referees under the Workmen's Compensation Act: BROCKMAN, R. ST. L., M.Ch. Camb., F.R.C.S. Eng. (Doncaster and East Retford); GALLOWAY, T. McL., F.R.C.S. Edin. (Clackmannan County).

Vacancies

For further information refer to the advertisement columns.

Aberdeen Royal Mental Hospital.—Jun. Asst. Phys. £300.
All Saints' Hospital, 91, Finchley-road, N.W.—H.S. At rate of £150.
Antrim Mental Hospital, N. Ireland.—Res. Med. Supt. £800.
Ashton-under-Lyne District Infirmary.—H.S. At rate of £150
Birmingham, Maternity and Child Welfare Dept.—Res. M.O. £250.
Blackburn, Calderstones (Certified Institution for Mental Defectives) Whalley.—Asst. M.O. £500.
Bootle General Hospital, Derby-road.—Hon. Orthopædic Surgeon.
Bradford Royal Infirmary.—H.S. At rate of £135.
Brighton Education Committee.—Asst. School M.O. and Asst. to the M.O.H. £500.
Bristol Eye Hospital.—Hon. Asst. Surgeon.
British Medical Association.—Asst. Med. Secy. £800.
Cambridge, Addenbrooke's Hospital.—Three H.S.'s to Special Depts. Each at rate of £130.
Cancer Hospital, Fulham-road, S.W.—H.S. At rate of £100.
Cardiff, King Edward VII. Welsh National Memorial Association.—Asst. Bacteriologist. £350.
Cardiff Royal Infirmary.—Radium Registrar. £200. Also H.P. At rate of £50.
Charing Cross Hospital, Strand, W.C.—Surg. Reg. £150. Also Obstet. Reg. £100.
Croydon General Hospital.—Hon. Asst. P.
Durham County Hospital.—Two H.S.'s. Each £150.
East Ham Memorial Hospital, Shrewsbury-road, E.—H.P. and H.S. and Cas. O. At rate of £150 and £120 respectively.
Exeter, Royal Devon and Exeter Hospital.—Cas. O. and H.S. to Spec. Depts. At rate of £150.
Great Barrow, Nr. Chester, East Lancs., Tuberculosis Colony.—Asst. M.O. At rate of £275.
Greenwich, Dreadnought Hospital.—H.P. and H.S. Each at rate of £110.
Halifax, St. Luke's Hospital.—Sen. Res. M.O. £350.
Harrogate Infirmary.—Jun. H.S. £140.
Hertford County Hospital.—H.S. At rate of £200.
Hospital for Sick Children, Great Ormond-street, W.C.—Cas. O. £400.
Hospital for Tropical Diseases, Endsleigh-gardens, W.C.—H.P. At rate of £150.
Hove, Lady Chichester Hospital.—Jun. H.P. At rate of £50.
Ipswich, East Suffolk and Ipswich Hospital.—H.S. and H.P. Each £120.
King's College Hospital, Denmark-hill, S.E.—Jun. Surg. to Ear, Nose, and Throat Dept.
Leicester Royal Infirmary.—H.S. and H.P.'s. Each at rate of £125.
Lewes, Newhaven Institution.—M.O. £100.
Lincoln, Bracebridge Mental Hospital.—Second Asst. M.O. £425.
London Lock Hospital, 91, Dean-street, W.—Surg. Reg. £100.
London Lock Hospital, Harrow-road, W.—Surg. Reg. £100.
Manchester, Northern Hospital, Park Place, Cheetham Hill-road. Jun. H.S. £100.
Manchester, Royal Children's Hospital, Pendlebury.—Res. M.O. At rate of £125.
Manchester, Royal Children's Hospital, Gartside-street.—Two Asst. M.O.'s. Each at rate of £150.
Manchester Royal Infirmary.—Med. Reg. to Out-patients. At rate of £150.
Miller General Hospital, Greenwich-road, S.E.—Res. Surg. O. and Reg. £250. Also H.P. £150. Also Anæsthetist. 52 gns.
National Hospital for Diseases of the Heart, Westmoreland-street, Marylebone, W.—Res. M.O. Also Out-patient O. At rate of £150 and £125 respectively.
Newcastle-upon-Tyne, Hospital for Sick Children.—H.P. Also Sen. and Jun. H.S.'s. Each at rate of £100.
North Middlesex County Hospital, Edmonton.—Jun. Res. Asst. M.O. £250.
Nottingham City Mental Hospital.—Second Asst. M.O. £400.

Oxford, Pembroke College.—Theodore Williams Medical Scholarship. £100.
Portsmouth Royal Hospital.—H.S. At rate of £130.
Prince of Wales's General Hospital, Tottenham, N.—Sen. and Jun. H.P.'s and H.S.'s. At rate of £120 and £90 respectively.
Princess Louise Kensington Hospital for Children, St. Quentin-avenue, N. Kensington, W.—H.P. At rate of £75.
Queen's Hospital for Children, Hackney-road, E.—H.P. and Cas. O. Each at rate of £100
Richmond, Surrey, Royal Hospital.—Jun. H.S. At rate of £100.
Rotherham Hospital.—H.P. £180.
Royal London Ophthalmic Hospital, City-road, E.C.—Two Out-patient Officers. Each £100.
Royal National Orthopædic Hospital, 234, Gt. Portland-street, W. H.S. At rate of £150. Also 2 H.S.'s for Country Branch, Brockley Hill, Stanmore. Each at rate of £150.
Royal Northern Hospital, Holloway, N.—Res. M.O. £200.
St. John's Hospital for Diseases of the Skin, 49, Leicester-square, W.C.—Out- and In-patients Registrars. Each £50.
St. Leonards-on-Sea, Buchanan Hospital.—Jun. H.S. At rate of £125.
St. Peter's Hospital for Stone &c., Henrietta-street, Covent Garden, W.C.—H.S. At rate of £75.
St. Thomas's Hospital.—Ophth. Reg. and Refractionist.
Salford Royal Hospital.—Res. H.S.'s to Special Depts. Each at rate of £125.
Sheffield, Jessop Hospital for Women.—H.S. At rate of £100.
South Metropolitan Gas Co., Old Kent-road, S.E.—Chief M.O. £1000.
Southend-on-Sea New General Hospital.—Hon. Surgeons and Physicians, &c. Also Res. M.O. £400.
Southern Rhodesia Medical Service.—Asst. and Relieving Govt M.O. £500.
Swanley, Kent, Hospital Convalescent Home, Parkwood.—Res. M.O. At rate of £200.
Walsall General Hospital.—H.P. and Res. Pathologist and H.S. Each at rate of £150.
West Riding of Yorkshire County Council.—School Med. Inspectors. £500.
Wigan, Royal Albert Edward Infirmary.—Three H.S.'s Each at rate of £150.
Wolverhampton Royal Infirmary.—Res. Asst. S. £250. Also H.S. to Ear, Nose, and Throat Dept. At rate of £100.

The Home Secretary gives notice of a vacancy for a Medical Referee under the Workmen's Compensation Act (1925) for the Sheriffdom of Lanark, and that it is proposed to appoint a surgeon to fill the vacancy. Applications from *Surgeons* should be addressed to the Private Secretary, Scottish Office, Whitehall, London, S.W.1, and should reach him not later than March 15th, 1932.

Medical Diary

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.
TUESDAY, March 1st.—8 P.M., PATHOLOGY. Laboratory Meeting at the Pathological Department, St. Bartholomew's Hospital. Demonstrations: H. Burt-White and R. T. Payne: Pathological Specimens. H. Burt-White: Sarcoma of the Uterus. E. R. Cullinan: Lungs from Cases of Influenza and Psittacosis. M. H. Gordon: A Simple Method of Staining Pleuropneumonia and Paschen Bodies. E. H. Kettle and R. H. Hilton: Early Lesions in Experimental Pneumonokoniosis. Short communications: M. H. Gordon: Myocardial Lesions in Experimental Psittacosis. R. R. Armstrong: Direct Pneumococcal Typing. L. P. Garrod: Bacteriostatic Action of Certain Dyes. R. H. Simpson: Variations in the Normal Blood Count. 8.30 P.M., ORTHOPÆDICS. Discussion: Fractures in the Region of the Angle Joint. Opener: Mr. R. Broomhead. Followed by Mr. J. P. Hosford and Mr. E. P. Brockman. SURGERY. Members of this section are specially invited to attend.
WEDNESDAY.—5 P.M., HISTORY OF MEDICINE. Paper: Dr. W. Langdon Brown: The History of the Introduction of Biochemistry into Medicine. Speakers: Sir Archibald E. Garrod, Sir Gowland Hopkins, Sir Henry Dale, Sir William Willcox, Prof. E. C. Dodds, Dr. T. Izod Bennett, and Dr. A. P. Cawadias. 8.30 P.M., SURGERY. Short Papers: Mr. Nils Eckhoff and Mr. D. W. C. Northfield: Results of Treatment of Fracture about the Elbow. Mr. C. W. Flemming: Fracture of Head of the Radius. Mr. R. S. Pilcher: Endothelioma of Lymph Nodes. Mr. T. H. Sellors: Thoracic Exposure of the Diaphragm and Lower Œsophagus.
THURSDAY.—8 P.M., TROPICAL DISEASES AND PARASITOLOGY. Paper: Dr. C. C. Chesterman (Yakusu Hospital, Belgian Congo): The Training and Employment of African Natives as Medical Assistants.
FRIDAY.—10.30 A.M., OTOLOGY. (Cases at 9.30 A.M.) Papers and slides: Dr. A. de Kleyn and Dr. A. Gray: A Case of Bilateral Acoustic Tumour. Dr. A. Gray: Pathological Changes in the Auditory Nerve. Cases and specimens. 5 P.M., LARYNGOLOGY. (Cases at 4 P.M.) Discussion: The Treatment of Suppurating Maxillary Sinusitis. Openers: Mr. W. M. Mollison Mr. A. J. Wright. Paper: Dr. Douglas Guthrie: The Operative Closure of Oromaxillary Fistula. Cases and specimens. 8.30 P.M., ANÆSTHETICS. Paper: Dr. C. W. Morris: Anæsthesia for Major Throat Operations. LARYNGOLOGY. Members of this Section are specially invited to attend.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.
MONDAY, Feb. 29th.—9 P.M., Mr. F. A. Williamson-Noble: The Reactions of the Eye to General Disease. (First Lettsomian lecture.)

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF PHYSICIANS, Pall Mall East, S.W.
TUESDAY, March 1st.—5 P.M., Dr. L. J. Witts: Pathology and Treatment of Anæmia. (First Goulstonian lecture.)
THURSDAY.—5 P.M. (Second Goulstonian lecture.)

GUY'S HOSPITAL, London Bridge, S.E.
MONDAY, Feb. 29th.—5 P.M., Dr. A. F. Hurst: Use of X Rays in Physical Diagnosis.

ROYAL NORTHERN HOSPITAL, Holloway-road, N.
TUESDAY, March 1st.—3.15 P.M., Dr. E. G. B. Calvert: Practical Points: Cases of Diabetes, Nephritis, and Goitre.

UNIVERSITY COLLEGE HOSPITAL MEDICAL SCHOOL, University-street, W.C.
TUESDAY, March 1st.—5.15 P.M., Dr. Dorothy Russell: Intracranial Tumours.

CHARING CROSS HOSPITAL MEDICAL SCHOOL.
SUNDAY, Feb. 28th.—10.45 A.M., Mr. H. E. Batten: Flat Foot. 11.45 A.M., Dr. A. A. W. Petrie: Diagnosis and Treatment of General Paralysis of the Insane.

NATIONAL HOSPITAL, Queen-square, W.C.
MONDAY, Feb. 29th.—2 P.M., Dr. Riddoch: Out-patient Clinic. 3.30 P.M., Dr. Kinnier Wilson: Epilepsy.
TUESDAY, March 1st.—2 P.M., Dr. Walshe: Out-patient Clinic. 3.30 P.M., Dr. Carmichael: Myasthenia.
WEDNESDAY.—2 P.M., Dr. Martin: Out-patient Clinic.
THURSDAY.—2 P.M., Dr. Kinnier Wilson: Out-patient Clinic. 3.30 P.M., Dr. Gordon Holmes: Symptoms of Cerebellar Disease.
FRIDAY.—2 P.M., Dr. Adie: Out-patient Clinic. 3.30 P.M., Dr. Carmichael: Myopathy.

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL, Denmark-hill, S.E.
THURSDAY, March 3rd.—9 P.M., Mr. V. E. Negus: Diseases of the Œsophagus.

SOUTH-WEST LONDON POST-GRADUATE ASSOCIATION, St. James' Hospital, Ouseley-road, Balham.
WEDNESDAY, March 2nd.—4 P.M., Dr. E. Young: Treatment of Gastric and Duodenal Ulcer by Duodenal Feeding.

ST. MARK'S HOSPITAL, City-road, E.C.
THURSDAY, March 3rd.—4.30 P.M., Mr. L. E. C. Norbury: The Sigmoidoscope and Some of Its Uses.

LONDON SCHOOL OF DERMATOLOGY, St. John's Hospital, 49, Leicester-square, W.C.
TUESDAY, March 1st.—5 P.M., Dr. W. Griffith: Eczema (1).
THURSDAY.—5 P.M., Dr. W. Griffiths: Eczema (2).

CENTRAL LONDON THROAT, NOSE, AND EAR HOSPITAL, Gray's Inn-road, W.C.
FRIDAY, March 4th.—4 P.M., Mr. A. L. Yates: Indications for Removal of Tonsils.

HAMPSTEAD GENERAL AND NORTH-WEST LONDON HOSPITAL.
WEDNESDAY, March 2nd.—4 P.M., Dr. H. C. Gage: X Ray Diagnosis of Diseases of the Alimentary Tract.

ST. PETER'S HOSPITAL, Henrietta-street, W.C.
WEDNESDAY, March 2nd.—3 P.M., Mr. A. C. Morson: Infections of the Urinary Tract.

ROYAL INSTITUTE OF PUBLIC HEALTH, 37, Russell-square, W.C.
WEDNESDAY, March 2nd.—4 P.M., Demonstration at Red Cross Centre, Peto-place, Regent's Park, N.W.

NATIONAL COUNCIL FOR MENTAL HYGIENE.
WEDNESDAY, March 2nd.—5.30 P.M. (at 11, Chandos-street, W.), Mr. T. A. Rodger: A Vocational Psychologist at Borstal.

GRESHAM COLLEGE, Basinghall-street, E.C.
TUESDAY, March 1st, and following WEDNESDAY, THURSDAY, and FRIDAY.—6 P.M., Sir George Newman: Great English Doctors and their Message. (Lantern lecture.)

ANCOATS HOSPITAL, Manchester.
THURSDAY, March 3rd.—4.15 P.M., Mr. E. E. Hughes: Hydronephrosis.

MANCHESTER ROYAL INFIRMARY.
TUESDAY, March 1st.—4.15 P.M., and following FRIDAY at the same hour: Clinical Cases in the Wards.

MANCHESTER ROYAL INFIRMARY.
TUESDAY, March 1st.—4.15 P.M., Mr. H. H. Rayner: Symptoms of Gastric Diseases; Their Significance and Constancy.
FRIDAY.—4.15 P.M., Mr. J. Morley: Demonstration of Surgical Cases.

SALFORD ROYAL HOSPITAL.
THURSDAY, March 3rd.—Mr. E. D. McCrea: Pneumothorax Demonstration.

ST. MARY'S HOSPITALS, Manchester.
FRIDAY, March 4th.—4.15 P.M. (at the Whitworth-street West Hospital), Dr. Dougal and Dr. Brentnall: Antenatal Demonstrations.

LOCK HOSPITAL, Glasgow.
WEDNESDAY, March 2nd.—4.15 P.M., Dr. David Watson: Venereal Diseases (Female).

NOTES, COMMENTS, AND ABSTRACTS

ECONOMIES IN PRESCRIBING.

"There can be no doubt that we doctors unintentionally very often involve our patients in expenses which represent an unnecessary export of our money abroad, and are, from the medical point of view, quite superfluous."

THIS quotation, taken from a paper by the Norwegian pharmacologist, Prof. E. Poulsson, in *Tidsskrift for den Norske Laegeforening* for Feb. 1st, is symptomatic of the world-wide agitation against imports and in favour of reduction of expenditure. Within the territory of each Great Power, the money made by the manufacturing chemist is, so to speak, kept in the family. In the smaller States, on the other hand, the popular drugs with protected names have to a large extent to be imported, chiefly from Germany. According to the fashionable economic doctrine, medical men in these countries have a double incentive to economise by prescribing drugs under their chemical instead of their trade names.

As Prof. Poulsson points out, only a few decades ago the new pharmacological impulses usually came from university laboratories unconcerned with the commercial side of the matter. At the present time the place of these laboratories is in this direction being taken more and more by the large chemical factories possessed of far greater material resources and often equipped with first-rate facilities for experimental research in laboratories staffed by specialists who coöperate on a sound footing with hospitals and similar institutions. After years of research and clinical tests a new drug, if it proves satisfactory, is put on the market at as high a price as commercial considerations allow, and the process of manufacture is patented for a certain number of years, 18 for example. If the drug is really valuable, the profit from such a monopoly with a time limit is well earned. The situation is somewhat different with the protected name, the monopoly of which has no time limit. A drug whose simple chemical composition has long been known, and whose preparation is perfectly easy, can be given a plausibly suggestive new name and foisted on the public by means of intensive propaganda.

Often the difference between the prices of one and the same drug sold under a protected name and its chemical name is enormous. In the 1930 edition of the "Arzneiverordnungsbuch der Deutschen Arzneimittelkonmission," a commission on which the German Society for Internal Medicine, the German Pharmacological Society, and other important bodies are represented, a table is published comparing the prices for a given weight when sold under this or that name. A few examples may be given here.

Quantity grammes.	Protected name.	Price in marks when sold under— M.	Chemical name.	M.
10	Antipyrine	0·70	Phenyl-dimethyl-pyrazolone	0·50
10	Atophan	4·40	Acid. Phenyl-chinolin-carbon.	1·20
1	Diuretin	0·20	Theobrom. et Sod. Salicyl.	0·05
1	Hetol	0·50	Sod. Cinnamas	0·10
1	Protargol	0·35	Argent. Proteinic	0·10
1	Urotropine	0·40	Hexamethylene-tetramine	0·05
1	Veronal	0·45	Acid. Diethyl-barbituric	0·10

When as much as 3 g. a day have to be taken the patient may have to discontinue a valuable remedy simply because his medical adviser has not troubled to prescribe the drug at the cheaper rate.

Chemical titles are often difficult to memorise, and in this connexion it may be recalled that in 1905, at the Conférence Internationale pour l'Unification de la Formule des Médicaments Héroïques, held in Brussels, the suggestion was made that an international pharmacological body should be created, one of whose duties should be to give short names to drugs whose scientific names are too long. These short names must, of course, be in their turn protected lest a commercial concern should corner them. This idea has been favourably received in certain quarters; as an example we may mention the name barbitone given to diethyl-barbituric acid in the British Pharmacopœia.

Prof. Poulsson quotes Nottebaum as having calculated that in Germany the sickness insurance funds are taxed to the tune of 50 million marks a year for superfluous drug bills. Quoting Trendelenburg, he refers to the host of trade synonyms for one and the same substance; for adrenalin there are 29 such synonyms, for the posterior lobe of the pituitary body there are 34, for the thyroid there are 31, and for digitalis a modest 41. In Norway a pharmacological commission is at present studying this problem, and it is significant that each member of this commission has received from an important trade organisation in Germany a communication in which it is suggested that the protected names of drugs mentioned in the Norwegian pharmacopœia should be unaccompanied by their chemical synonyms. The idea that doctors and chemists should be kept in ignorance of the scientific names of drugs sold under a protected name was unanimously and without discussion rejected by the commission.

TEACHERS OF THE DEAF.

FROM the National Institute for the Deaf, Mr. A. J. Story writes:—"This Institute receives frequent enquiries from deafened persons for teachers of lip-reading, and some also from hearing persons who desire to be trained as teachers of this subject. It has also been represented to us that some who have leisure may desire to train in order to help the deafened in their district as a voluntary social service, while others not so favourably circumstanced may wish to teach professionally. We shall be glad to hear from any who are seriously interested in this matter. It is essential that those who teach the deaf should themselves have unimpaired hearing, should be of bright and active personality, and have received a good education. If sufficient numbers are forthcoming, this Institute will arrange short courses of training for teachers of this subject. The proposed courses will not qualify for teaching deaf and dumb or deafened children of school age, nor for service in schools or institutions under the Board of Education."

The address of the Institute is 2, Bloomsbury-street, London, W.C. 1.

THE PHYSIOLOGY OF MUSCLE AND NERVE.

THE advance in knowledge of the physiology of muscle and nerve has depended very largely on the invention of delicate apparatus. This has been wonderfully improved since G. J. Burch adapted the capillary electrometer and enabled Francis Gotch to get a record of the passage of a single impulse along a nerve. With modern galvanometers, amplifiers, and loud speakers, what was then demonstrated with difficulty and imperfectly can now make as much noise in the world as anyone cares to hear. Mr. Matthews gives in a handy volume [1] an account of the substantial progress made by Prof. E. D. Adrian and himself in the study of the nature of the nervous impulses which arise in consequence of artificial and natural stimulation. He adds short discussions on some of the relations of the body to electricity and on some aspects of the special senses. As a piece of popular scientific exposition the book is not very successful. It makes the fundamental mistake of appealing to the wonder and emotions of the reader rather than to his intelligent interest. In places, too, the physiology is unsound; it is misleading, for instance, to state without qualification (p. 27) that it is the nervous system which is responsible for the coördinated activity of the various parts of the body.

[1] Electricity in our Bodies. By B. H. C. Matthews, M.A., Fellow of King's College, Cambridge. London: George Allen and Unwin. 1931. Pp. 108, 19 figures. 1s. 6d.

SIR BENJAMIN WARD RICHARDSON.

IN a Chadwick lecture on Sir Benjamin Ward Richardson, delivered in London on Feb. 18th, Dr. J. D. Rolleston said that although it was little more than 35 years since Richardson's death, his valuable contributions to public health, his work, and even his name were little known to the present generation. He was born in 1828 at Somerby, in Rutlandshire, and after a varied experience as assistant to country practitioners, qualified at Glasgow in 1850. He subsequently came to London, and at the early age of 30 was already well known in the medical profession. His time was henceforth divided between consultant practice, laboratory research, especially in connexion with anæsthetics, delivery of lectures, and literary work, in which he was engaged until two days of his death in 1896. In 1867 he was elected F.R.S., and in 1893 he was knighted. He was the founder and editor of the first two journals in this country devoted to public health—viz., the *Sanitary Review and Journal of Public Health* (1855–59), and the *Social Science Review* (1864–66). In addition to biographies of eminent medical men or natural philosophers, which were published separately in 1901 under the title of "Disciples of Æsculapius," and clinical and experimental studies, the 12 volumes of the "Asclepiad" (of which the first appeared in 1862 and the remainder were published quarterly between 1884 and 1895, and were entirely written by himself) contained numerous articles dealing with various aspects of hygiene.

Richardson was one of the founders of the Epidemiological Society of London, took an active part in the proceedings of the Sanitary Inspectors' Association, and in 1882 founded the Model Abattoir Society. His lectures and addresses covered a wide field, including such subjects as a model city of health, dress in relation to health, woman as a sanitary reformer, national main drainage, and the healthy culture of the literary life. In 1878 he first made the proposal, which was not realised until 23 years after his death, for the establishment of a Ministry of Health. His most important lectures and addresses were those dealing with alcohol, in the scientific campaign against which he was a pioneer.

OFFICIAL YEAR BOOK OF LEARNED SOCIETIES.

THE forty-eighth annual issue of this year book is much reduced in bulk owing to omission of the "Lists of papers read" at the various scientific and learned socieites which has been a feature of previous issues. This has enabled the publishers (Messrs. Charles Griffin and Co., Ltd.) to reduce the price of the book from 18*s*. to 10*s*., and this should bring it within the reach of a wider circle of subscribers. The information contained has been checked by the officers of societies and departments concerned, and the year book can be relied on as a safe and comprehensive work of reference. The volume should be on every editorial table and on the shelves of every public library.

THE CARE OF SOLDIERS' FEET.

A SMALL monthly magazine is issued in Germany at about a shilling, called *Kriegskunst*, which we may translate as "practical points about war," for the instruction of "other ranks." It gives instruction on map-reading, stories of gallant deeds and pictures of notable soldiers, and suggests how to deal with emergencies such as leaders of small parties must always be prepared for. Its pictures, "right and wrong," interest us most. Usually there are a dozen pairs of these, illustrating, for instance, the right and the wrong ways of climbing hills in snow, of training war-dogs, or of loading horses on trains. One of these series [1] is concerned with the care of the feet. It is wrong, says the instructor, to throw oneself carelessly on the ground at a halt on a route march, for the purpose of a halt is the care of the feet, when the malicious little demon (shown) who has put a pebble in one's boot can be sidetracked. How boots should and should not be dried is pictured, and the right and the wrong way of cutting toenails. These pictures may profitably be examined by those who are providing training manuals for the troops, for they tell in a moment what would otherwise need three lines of print, and, besides, the lessons are more easily memorised. Dissatisfied faces appear on the soles of the ill-used feet, whose owners are evidently among the less creditable of the soldiers delineated in the series.

[1] Kriegskunst im Wort und Bild (Bendlerstrasse, 8, Berlin W.10), October, 1931.

AN EAST-END CLUB OPEN TO NURSES.

Mrs. B. L. Q. Henriques writes from the Bernhard Baron St. George's Jewish Settlement, Berner-street, Commercial-road, E.1:—"It may be of interest to those of the nursing profession attached to hospitals in the S.E., E.C., and E. districts of London to know that these beautifully equipped and comfortable premises are at their disposal for the purpose of a recreational club during off-duty time. The object of the club is to provide facilities for every sort of pastime for nurses, without any expense to them beyond a very small annual associate's fee. The club (which is already used by one hospital) is open daily from 9 A.M. to 5.30 P.M., thereby making it of use to both day and night nurses. The following are some of the activities available:—

Gymnastics, dancing, roller-skating, netball, badminton, deck-tennis, ping-pong, chess and draughts, reading-room, lending library, sewing-room, laundry, piano and violin practice, organ practice, glee singing, talks on art and music, and dramatic and debating section.

The changing-room, shower baths, &c., are available, as well as the common-room, garden, roof-playground and picture gallery which are open to members of the club. The restaurant and canteen may also be used.

The matrons of the various institutions within the radius are being notified of this scheme. It is hoped that the club will fill the need for a centre to which nurses can go for rest and recreation within reasonable distance of their hospitals, returning to them refreshed and with renewed vigour and inspiration. Application for membership should be made to me at the above address."

A FRAUDULENT YOUNG PERSON.

WE understand that members of the medical profession are being approached by a correspondent named sometimes Millicent E. Aldridge and sometimes Mary Beale, the alleged reason for seeking pecuniary assistance being that she is awaiting an allowance from New Zealand, while she claims to be the daughter of a doctor. We understand that her correspondence is profuse, which accounts perhaps for the slip which allowed her to make identical applications for aid to the Royal Medical Benevolent Fund under her two different signatures, applying to the Fund personally as Mary Beale "on behalf of her father Dr. Thomas Beale," and to a member of the committee of the Fund in the same words as Millicent Aldridge. This led to the Fund bringing the matter before the Charity Organisation Society, whose information is clear, stating that the applicant for help is a young woman, a notorious begging letter writer, with the real name of Jean Atherton. The Society strongly urges all who are approached by her to immediately communicate with the police.

CROYDON HOSPITAL NURSES' HOME.—Lady Brown, wife of Sir Robert Brown, chairman of Croydon Hospital, recently opened the Charles Heath Clark memorial home for nurses in connexion with the hospital. The home was formerly three houses which have been bought and reconstructed at a cost of £20,000, one-half of which has been contributed by the executors of Mr. Clark, who was twice mayor of Croydon. There are 54 bedrooms.